FCC Test Report

Product Name	：	Wireless-AC2200 Tri Band Gigabit Router
Trade Name	：	ASUS
Model No.	：	Lyra Voice
FCC ID.	：	MSQ-RTHU00

Applicant	：	ASUSTeK COMPUTER INC.
Address	：	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

Date of Receipt	：	Jun. 24, 2018
Issued Date	：	Oct. 29, 2018
Report No.	：	1860341R-RFUSP01V00-B
Report Version	：	V1.0

Testing Laboratory
3024

Test Report Certification

Issued Date ：Oct. 29, 2018
Report No. ：1860341R-RFUSP01V00-B

Product Name	:	Wireless-AC2200 Tri Band Gigabit Router
Applicant	:	ASUSTeK COMPUTER INC.
Address	:	4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan
Manufacturer	:	ASUSTeK COMPUTER INC.
Trade Name	:	ASUS
Model No.	:	Lyra Voice
FCC ID.	:	MSQ-RTHU00
EUT Voltage	:	AC 100-240V, 50-60Hz
Testing Voltage	:	AC 120V/60Hz
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2017 ANSI C63.10: 2013
Laboratory Name	:	Hsin Chu Laboratory
Address	:	No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan, R.O.C. TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result	:	Complied

Documented By : Carol Tsai

(Carol Tsai / Senior Engineering Adm. Specialist)

Tested By : Elwin Lin

(Elwin Lin / Engineer)

Approved By : Roy Wang

(Roy Wang / Director)

Revision History

Report No.	Version	Description	Issued Date
1860341R-RFUSP01V00-B	V1.0	Initial issue of report	Oct. 29, 2018

TABLE OF CONTENTS

1. General Information

1.1. EUT Description

Product Name	Wireless-AC2200 Tri Band Gigabit Router
Trade Name	ASUS
Model No.	Lyra Voice
Frequency Range/Channel Number	2402~2480MHz / 40 Channels
Type of Modulation	GFSK

Antenna Information	
Antenna Type	PCB Dipole Antenna
Antenna Gain	1.96dBi

Accessories Information	
LAN Cable	Non-Shielded, 1.4m
Power Adapter	DELTA, ADP-45BW B I/P : 100-240V~1.2A 50-60Hz O/P : 19V ⎓ 2.37A Cable Out: Non-Shielded, 2.2m
Power Adapter	DELTA, ADP-45BW Y I/P : 100-240V~50-60Hz 1.2A O/P : 19V ⎓ 2.37A Cable Out: Non-Shielded, 2.2m
Power Adapter	PI, AD2066320 I/P : 100-240V~50/60Hz 1.0A O/P : 19V ⎓ 2.37A Cable Out: Non-Shielded, 2.2m
Power Adapter	PI, AD883J20 I/P : 100-240V 1.0A 50/60Hz O/P : 19V ⎓ 2.37A Cable Out: Non-Shielded, 2.2m

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00	2402 MHz	Channel 10	2422 MHz	Channel 20	2442 MHz	Channel 30	2462 MHz
Channel 01	2404 MHz	Channel 11	2424 MHz	Channel 21	2444 MHz	Channel 31	2464 MHz
Channel 02	2406 MHz	Channel 12	2426 MHz	Channel 22	2446 MHz	Channel 32	2466 MHz
Channel 03	2408 MHz	Channel 13	2428 MHz	Channel 23	2448 MHz	Channel 33	2468 MHz
Channel 04	2410 MHz	Channel 14	2430 MHz	Channel 24	2450 MHz	Channel 34	2470 MHz
Channel 05	2412 MHz	Channel 15	2432 MHz	Channel 25	2452 MHz	Channel 35	2472 MHz
Channel 06	2414 MHz	Channel 16	2434 MHz	Channel 26	2454 MHz	Channel 36	2474 MHz
Channel 07	2416MHz	Channel 17	2436 MHz	Channel 27	2456 MHz	Channel 37	2476 MHz
Channel 08	2418 MHz	Channel 18	2438 MHz	Channel 28	2458 MHz	Channel 38	2478 MHz
Channel 09	2420 MHz	Channel 19	2440 MHz	Channel 29	2460 MHz	Channel 39	2480 MHz

Note:

1. This device is Wireless-AC2200 Tri Band Gigabit Router support 2.4GHz b/g/n/ac and 5GHz a/n/ac and BT2.0/BT4.0 transmitting and receiving function.
2. Regards to the frequency band operation; the lowest、middle and highest frequency of channel were selected to perform the test, and then shown on this report.

1.2. Test Mode

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Test Mode	Mode 1: Transmit_ADP-45BW B Mode 2: Transmit_ADP-45BW Y Mode 3: Transmit_AD2066320 Mode 4: Transmit_AD883J20

Test Items	Modulation	Channel	Result
Conducted Emission	GFSK	19	Complies
Maximum peak conducted output power	GFSK	00/19/39	Complies
Radiated Emission	GFSK	00/19/39	Complies
RF antenna conducted test	GFSK	00/19/39	Complies
Radiated Emission Radiated Emission Band Edge	GFSK	00/19/39	Complies
Occupied Bandwidth & DTS Bandwidth	GFSK	00/19/39	Complies
Power Density	GFSK	00/19/39	Complies

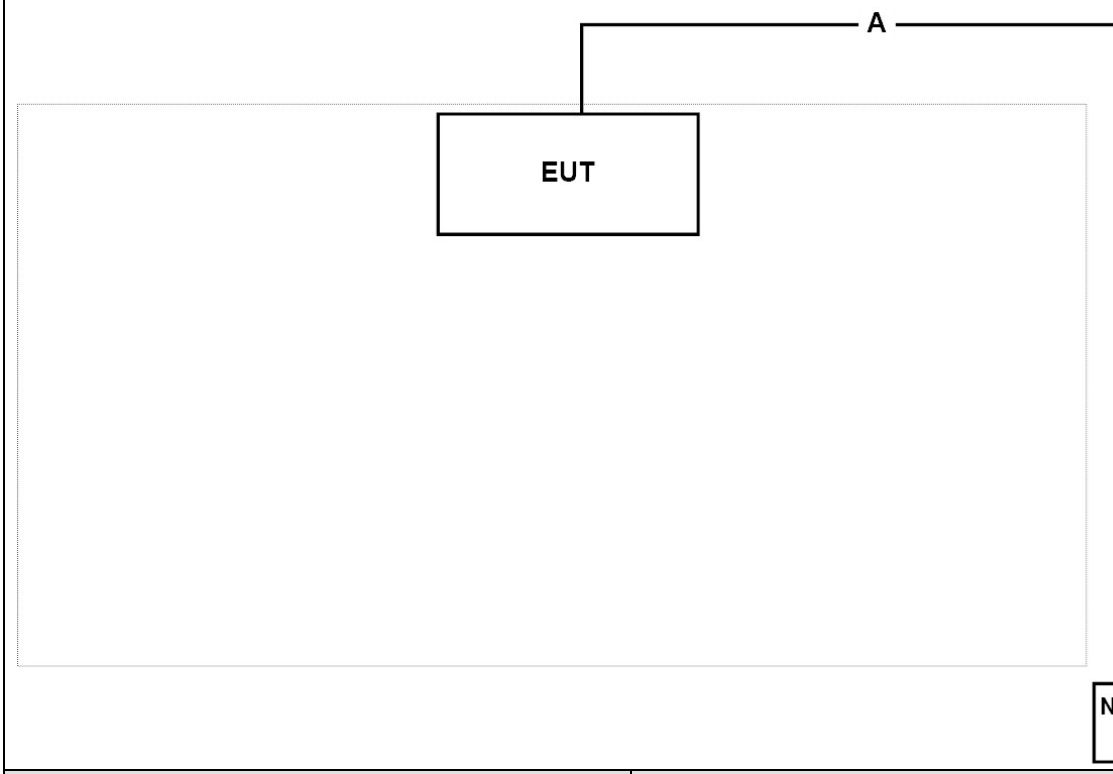
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	Lenovo	B590	WB1529782	DoC	Non-Shielded, 1.8m, one ferrite core bonded

1.4. Configuration of tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded, 4m

1.5. EUT Exercise Software

1	Setup the EUT as shown in Section 1.4.
2	Execute the command on the laptop.
3	Configure the test mode, the test channel, and the data rate.
4	Press “Start TX” to start the continuous transmitting.
5	Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual	Test Site
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	20	3
Humidity (%RH)		25 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Maximum peak conducted output power	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission	15 - 35	25	2
Humidity (%RH)		25 - 75	54	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 RF antenna conducted test	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission Band Edge	15 - 35	25	2
Humidity (%RH)		25 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth & DTS Bandwidth	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Power Density	15 - 35	24	3
Humidity (%RH)		25 - 75	45	
Barometric pressure (mbar)		860 - 1060	950-1000	

Note: Test site information refers to Laboratory Information.

Laboratory Information

USA	**:**	**FCC Registration Number: TW3024**
Canada		**IC Registration Number: 22397-1 / 22397-2 / 22397-3**

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:
http://www.dekra.com.tw/english/about/certificates.aspx?bval=5
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en.aspx

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

1 No. 75-2, 3rd Lin, WangYe Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan (R.O.C.)
TEL: +886-3-592-8858 / FAX: +886-3-592-8859 E-Mail : info.tw@dekra.com

2 No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
TEL: +886-3-582-8001 / FAX: +886-3-582-8958 E-Mail : info.tw@dekra.com

3 No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
TEL: +886-3-582-8001 / FAX: +886-3-582-8958 E-Mail : info.tw@dekra.com

1.7. List of Test Equipment

Conducted Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2018/01/22	2019/01/21
Test Receiver	R&S	ESCS 30	836858/022	2018/03/30	2019/03/29
LISN	R&S	ENV216	100092	2018/07/23	2019/07/22

Maximum peak conducted output power / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2018/01/02	2019/01/01
Pulse Power Sensor	Anritsu	MA2411B	1531043	2018/01/02	2019/01/01
Pulse Power Sensor	Anritsu	MA2411B	1531044	2018/01/02	2019/01/01
Power Meter	Keysight	8990B	MY51000248	2018/06/07	2019/06/06
Power Sensor	Keysight	N1923A	MY57240005	2018/06/07	2019/06/06

Radiated Emission / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/10	2019/01/09
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04
Bilog Antenna	Teseq	CBL6112D	23191	2018/06/26	2019/06/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2018/06/01	2019/05/31
Horn Antenna	Schwarzbeck	BBHA 9170	202	2018/01/31	2019/01/30
Pre-Amplifier	Dekra	AP-025C	201801236	2018/02/26	2019/02/25
Pre-Amplifier	EMCI	EMC11830I	980366	2018/01/08	2019/01/07
Pre-Amplifier	Dekra	AP-400C	201801231	2017/12/13	2018/12/12
Band Reject Filter	Micro-Tronics	BRM50702	G192	2018/04/11	2019/04/10
Band Reject Filter	Micro-Tronics	BRM50716	G089	2018/04/11	2019/04/10
Cable	Suhner	SF104_SF104_ SF104_SF104	A211	2017/08/29 2018/08/28	2018/08/28 2019/08/27
Cable	Suhner	SF104_SF104_ SF104_SF102	A219	2017/08/16 2018/08/15	2018/08/15 2019/08/14
Mangnetic Loop Antenna	Teseq	HLA6121	44287	2017/10/13 2018/09/28	2018/10/12 2019/09/27

RF antenna conducted test / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/10	2019/01/09

Radiated Emission Band Edge / CB2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/10	2019/01/09
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04
Bilog Antenna	Teseq	CBL6112D	23191	2018/06/26	2019/06/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2018/06/01	2019/05/31
Horn Antenna	Schwarzbeck	BBHA 9170	202	2018/01/31	2019/01/30
Pre-Amplifier	Dekra	AP-025C	201801236	2018/02/26	2019/02/25
Pre-Amplifier	EMCI	EMC11830I	980366	2018/01/08	2019/01/07
Pre-Amplifier	Dekra	AP-400C	201801231	2017/12/13	2018/12/12
Cable	Suhner	SF104_SF104_SF104_SF104	A211	2017/08/29	2018/08/28
Cable	Suhner	SF104_SF104_SF104_SF102	A219	2017/08/16	2018/08/15

Occupied Bandwidth & DTS Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/10	2019/01/09

Power Density / SR10-H

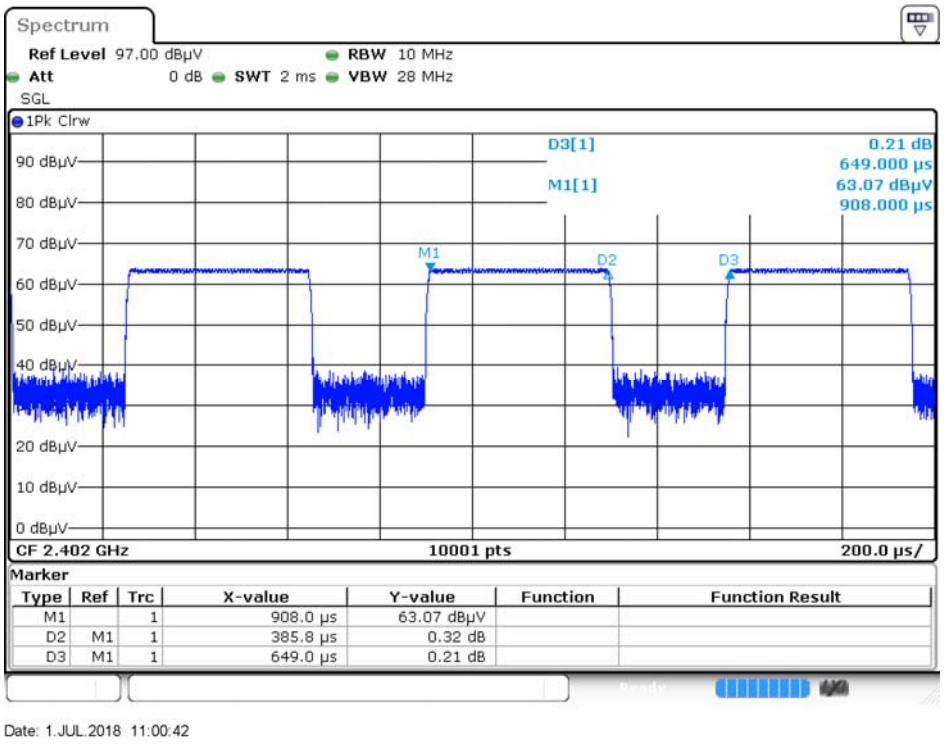
Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/10	2019/01/09

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

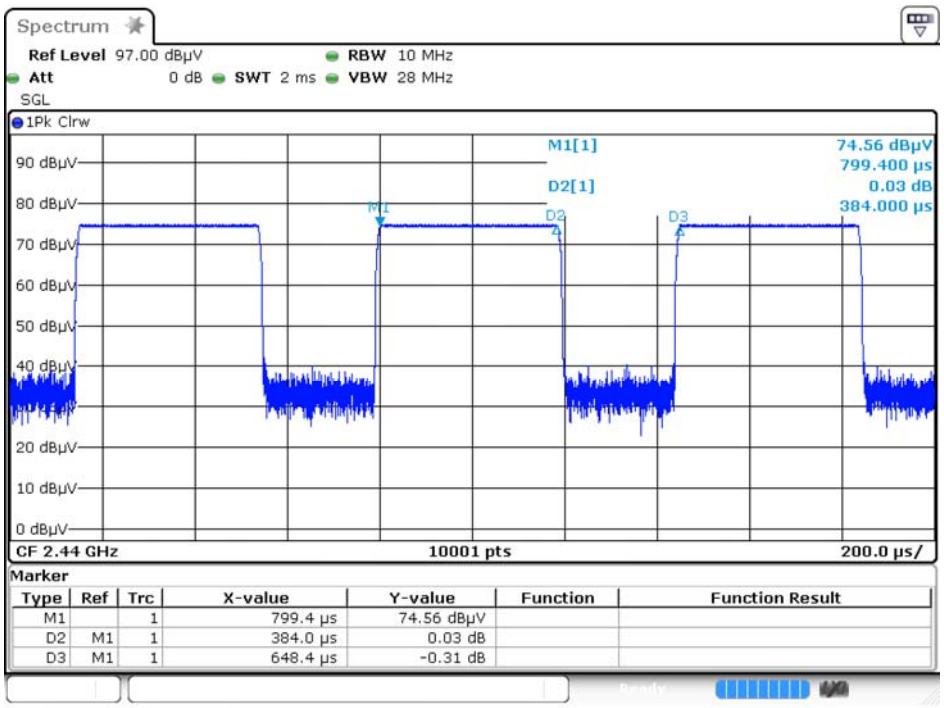
1.8. Duty cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
2402	0.386	0.649	59.45%	4.517649	2.59
2440	0.384	0.648	59.22%	4.550236	2.60
2480	0.384	0.650	59.08%	4.570821	2.61

Channel 00

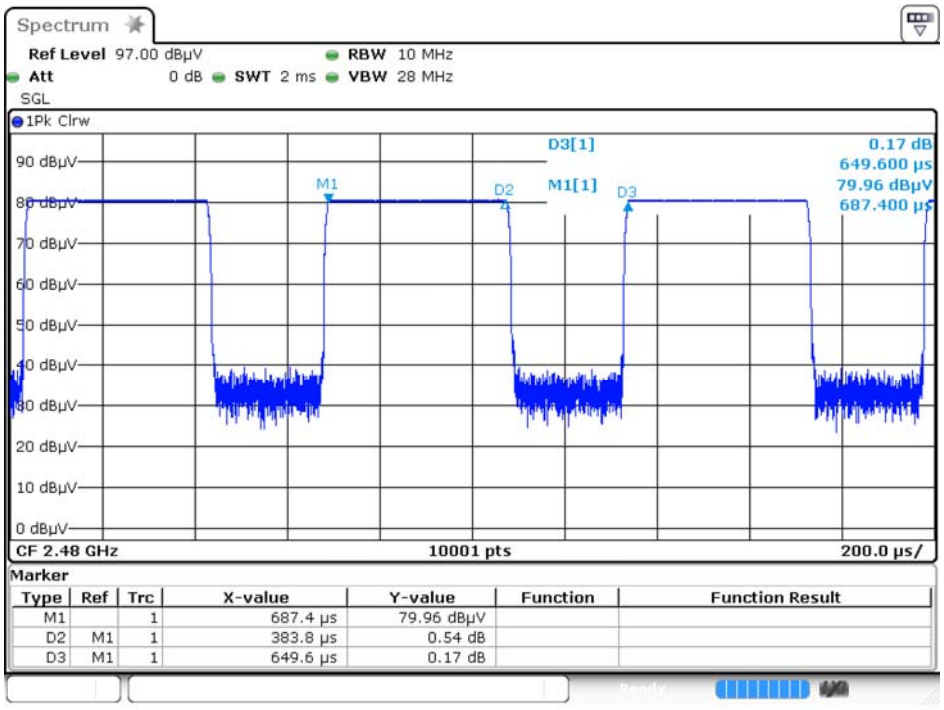


Channel 19



Date: 1.JUL.2018 11:02:41

Channel 39



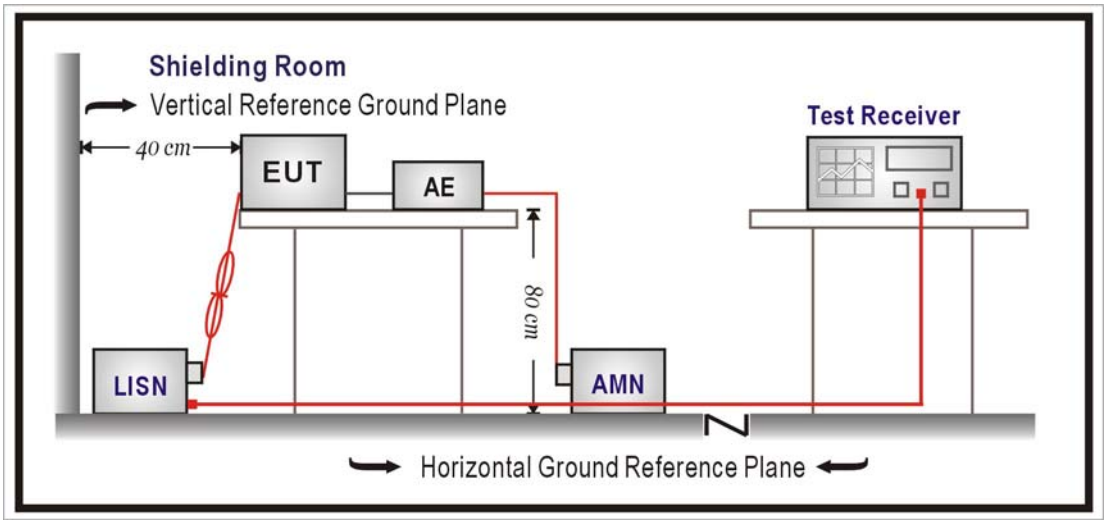
Date: 1.JUL.2018 11:03:45

1.9. Uncertainty

Test item	Uncertainty
Conducted Emission	± 2.26 dB
Maximum peak conducted output power	± 1.27 dB
Radiated Emission	30MHz～1GHz as ±3.43dB 1GHz～26.5GHz as ±3.65dB
RF antenna conducted test	± 1.27dB
Radiated Emission Radiated Emission Band Edge	± 3.9 dB
Occupied Bandwidth & DTS Bandwidth	±50 Hz
Power Density	±1.27 dB

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

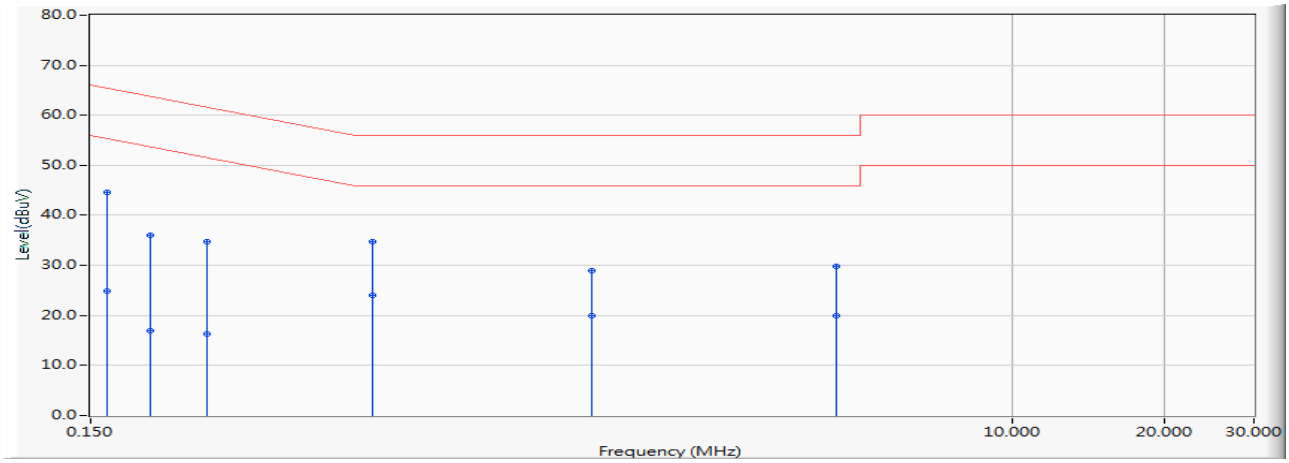
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9KHz.

2.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.207: 2017

2.5. Test Result

Site : SR2-H	Time : 2018/08/09
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-B127_LISN(16A)-8 - Line1	Power : AC 120V/60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2440MHz

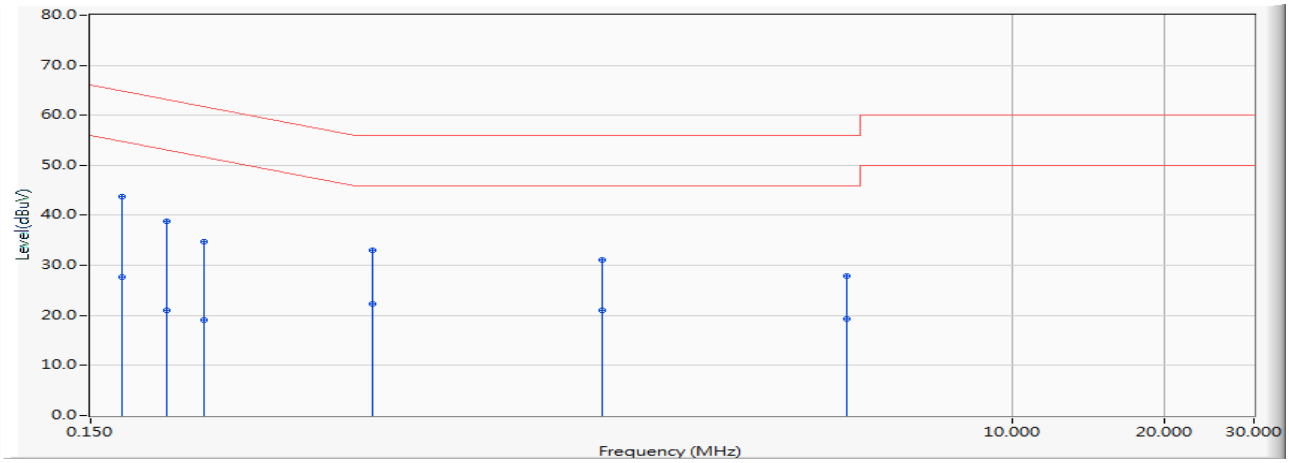


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.162	9.680	35.000	44.680	-20.681	65.361	QUASIPEAK
2		0.162	9.680	15.100	24.780	-40.581	65.361	AVERAGE
3		0.197	9.680	26.440	36.120	-27.616	63.736	QUASIPEAK
4		0.197	9.680	7.200	16.880	-46.856	63.736	AVERAGE
5		0.255	9.680	25.120	34.800	-26.793	61.593	QUASIPEAK
6		0.255	9.680	6.640	16.320	-45.273	61.593	AVERAGE
7		0.541	9.690	25.160	34.850	-21.150	56.000	QUASIPEAK
8		0.541	9.690	14.380	24.070	-31.930	56.000	AVERAGE
9		1.474	9.795	19.160	28.955	-27.045	56.000	QUASIPEAK
10		1.474	9.795	10.190	19.985	-36.015	56.000	AVERAGE
11		4.490	9.817	20.000	29.817	-26.183	56.000	QUASIPEAK
12		4.490	9.817	10.190	20.007	-35.993	56.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	Time : 2018/08/09
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-B127_LISN(16A)-8 - Line2	Power : AC 120V/60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2440MHz

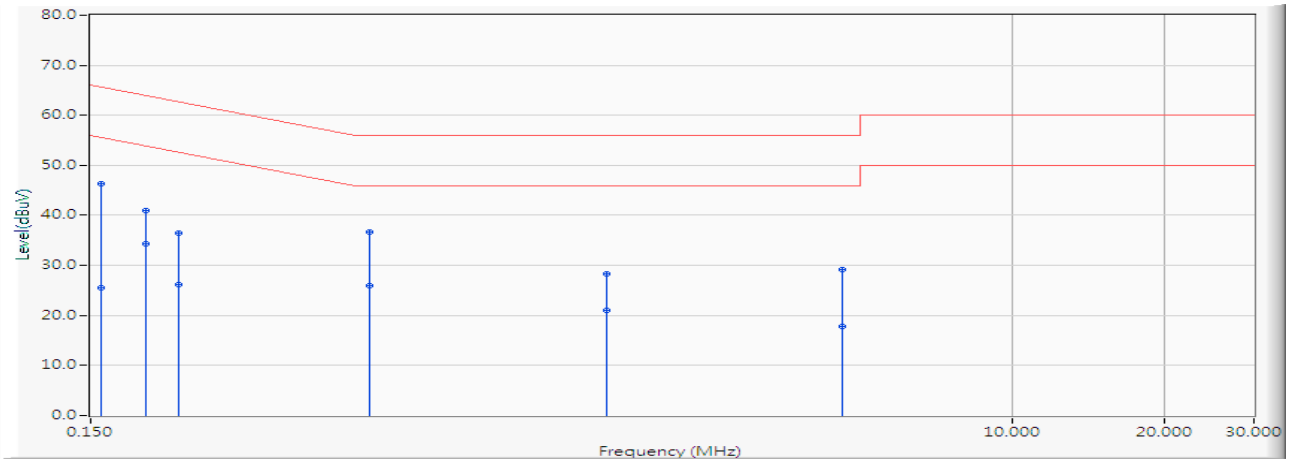


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.173	9.680	34.000	43.680	-21.114	64.794	QUASIPEAK
2		0.173	9.680	17.910	27.590	-27.204	54.794	AVERAGE
3		0.212	9.680	29.180	38.860	-24.247	63.107	QUASIPEAK
4		0.212	9.680	11.330	21.010	-32.097	53.107	AVERAGE
5		0.252	9.680	25.020	34.700	-27.005	61.705	QUASIPEAK
6		0.252	9.680	9.330	19.010	-32.695	51.705	AVERAGE
7		0.541	9.690	23.360	33.050	-22.950	56.000	QUASIPEAK
8		0.541	9.690	12.660	22.350	-23.650	46.000	AVERAGE
9		1.537	9.795	21.220	31.015	-24.985	56.000	QUASIPEAK
10		1.537	9.795	11.180	20.975	-25.025	46.000	AVERAGE
11		4.689	9.827	18.160	27.987	-28.013	56.000	QUASIPEAK
12		4.689	9.827	9.390	19.217	-26.783	46.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	Time : 2018/08/10
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H-B127_LISN(16A)-8 - Line1	Power : AC 120V/60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 2: Transmit_ADP-45BW Y 802.15.1_BLE_2440MHz

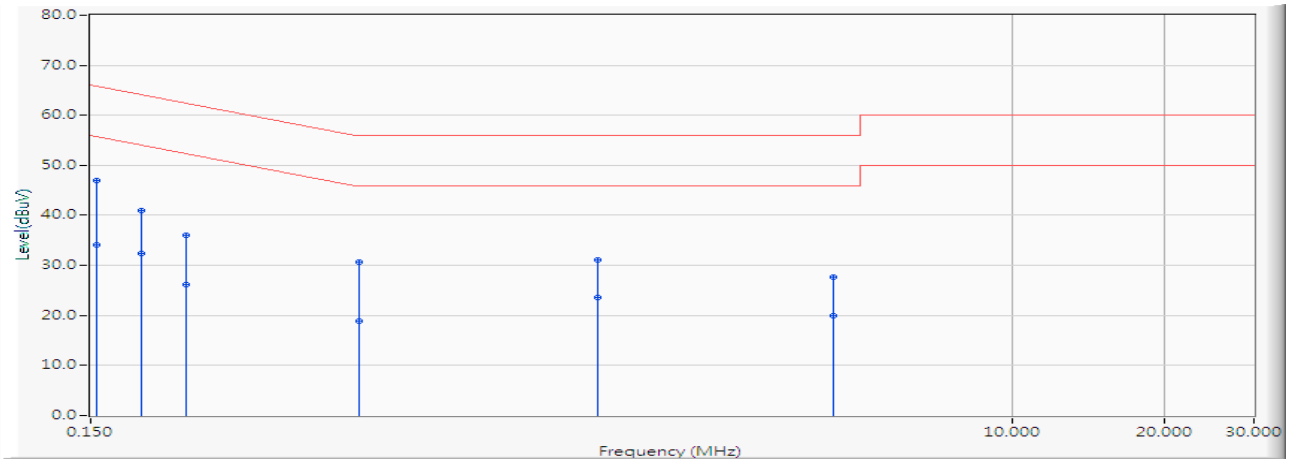


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.158	9.677	36.600	46.277	-19.301	65.578	QUASIPEAK
2		0.158	9.677	15.760	25.437	-30.141	55.578	AVERAGE
3		0.193	9.680	31.320	41.000	-22.908	63.908	QUASIPEAK
4		0.193	9.680	24.650	34.330	-19.578	53.908	AVERAGE
5		0.224	9.680	26.740	36.420	-26.241	62.661	QUASIPEAK
6		0.224	9.680	16.430	26.110	-26.551	52.661	AVERAGE
7		0.533	9.688	27.000	36.689	-19.311	56.000	QUASIPEAK
8		0.533	9.688	16.320	26.009	-19.991	46.000	AVERAGE
9		1.576	9.796	18.580	28.376	-27.624	56.000	QUASIPEAK
10		1.576	9.796	11.130	20.926	-25.074	46.000	AVERAGE
11		4.595	9.818	19.260	29.078	-26.922	56.000	QUASIPEAK
12		4.595	9.818	8.020	17.838	-28.162	46.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	Time : 2018/08/10
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H-B127_LISN(16A)-8 - Line2	Power : AC 120V/60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 2: Transmit_ADP-45BW Y 802.15.1_BLE_2440MHz

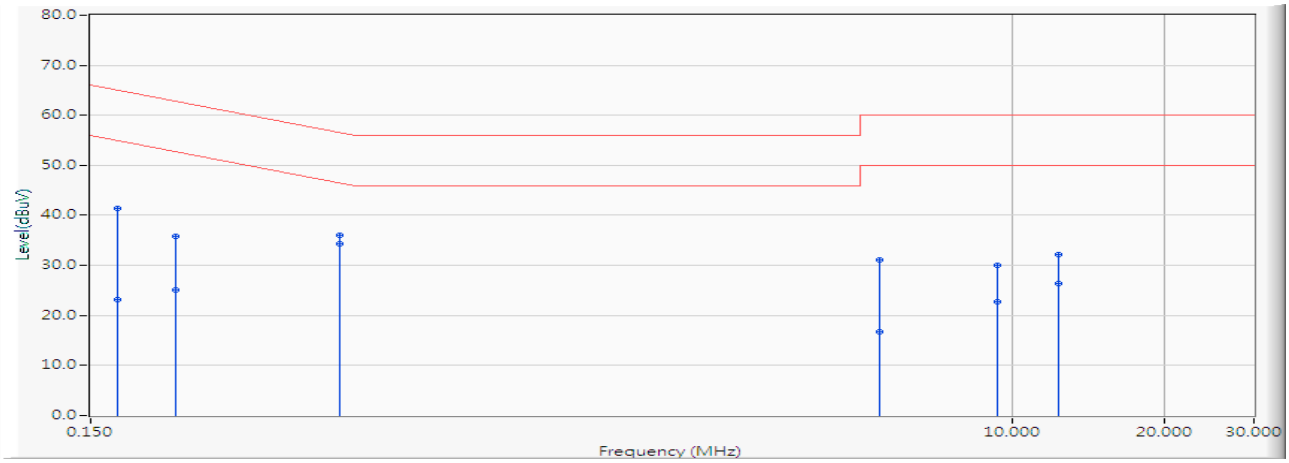


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.154	9.673	37.300	46.972	-18.814	65.786	QUASIPEAK
2		0.154	9.673	24.370	34.042	-21.744	55.786	AVERAGE
3		0.189	9.680	31.300	40.980	-23.098	64.078	QUASIPEAK
4		0.189	9.680	22.770	32.450	-21.628	54.078	AVERAGE
5		0.232	9.680	26.260	35.940	-26.437	62.377	QUASIPEAK
6		0.232	9.680	16.540	26.220	-26.157	52.377	AVERAGE
7		0.509	9.684	20.880	30.564	-25.436	56.000	QUASIPEAK
8		0.509	9.684	9.200	18.884	-27.116	46.000	AVERAGE
9		1.505	9.795	21.280	31.075	-24.925	56.000	QUASIPEAK
10		1.505	9.795	13.750	23.545	-22.455	46.000	AVERAGE
11		4.412	9.824	17.940	27.764	-28.236	56.000	QUASIPEAK
12		4.412	9.824	10.190	20.014	-25.986	46.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	Time : 2018/08/14
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H-B127_LISN(16A)-8 - Line1	Power : AC 120V/60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 3: Transmit_AD2066320 802.15.1_BLE_2440MHz

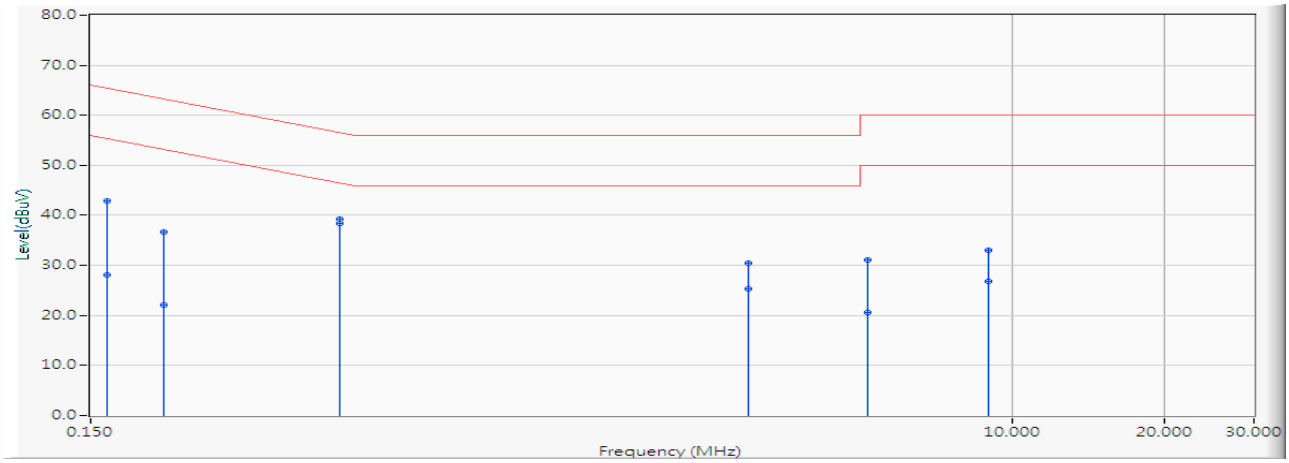


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.170	9.680	31.700	41.380	-23.603	64.983	QUASIPEAK
2		0.170	9.680	13.450	23.130	-31.853	54.983	AVERAGE
3		0.220	9.680	26.060	35.740	-27.067	62.807	QUASIPEAK
4		0.220	9.680	15.410	25.090	-27.717	52.807	AVERAGE
5		0.466	9.681	26.440	36.121	-20.457	56.578	QUASIPEAK
6	*	0.466	9.681	24.700	34.381	-12.197	46.578	AVERAGE
7		5.439	9.847	21.220	31.067	-28.933	60.000	QUASIPEAK
8		5.439	9.847	6.980	16.827	-33.173	50.000	AVERAGE
9		9.326	10.054	19.960	30.014	-29.986	60.000	QUASIPEAK
10		9.326	10.054	12.680	22.734	-27.266	50.000	AVERAGE
11		12.341	10.165	22.000	32.165	-27.835	60.000	QUASIPEAK
12		12.341	10.165	16.320	26.485	-23.515	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	Time : 2018/08/14
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H-B127_LISN(16A)-8 - Line2	Power : AC 120V/60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 3: Transmit_AD2066320 802.15.1_BLE_2440MHz

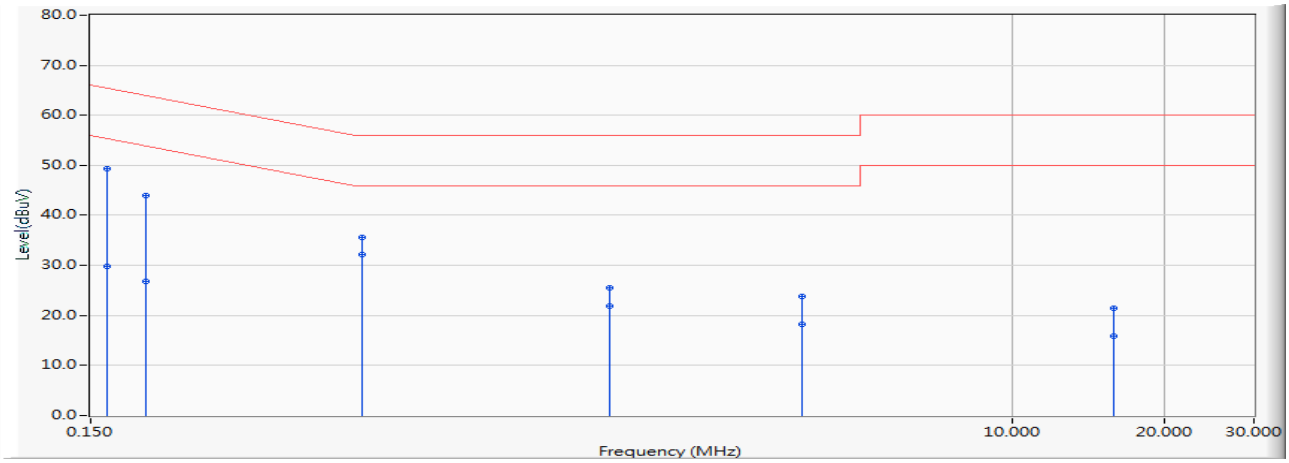


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.162	9.680	33.140	42.820	-22.555	65.375	QUASIPEAK
2		0.162	9.680	18.350	28.030	-27.345	55.375	AVERAGE
3		0.209	9.680	26.940	36.620	-26.641	63.261	QUASIPEAK
4		0.209	9.680	12.500	22.180	-31.081	53.261	AVERAGE
5		0.466	9.681	29.600	39.281	-17.297	56.578	QUASIPEAK
6	*	0.466	9.681	28.790	38.471	-8.107	46.578	AVERAGE
7		2.994	9.810	20.720	30.530	-25.470	56.000	QUASIPEAK
8		2.994	9.810	15.530	25.340	-20.660	46.000	AVERAGE
9		5.150	9.838	21.220	31.057	-28.943	60.000	QUASIPEAK
10		5.150	9.838	10.830	20.667	-29.333	50.000	AVERAGE
11		8.927	10.026	23.020	33.046	-26.954	60.000	QUASIPEAK
12		8.927	10.026	16.810	26.836	-23.164	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	Time : 2018/10/24
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H-B127_LISN(16A)-8 - Line1	Power : AC 120V/60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 4: Transmit_AD883J20 802.15.1_BLE_2440MHz

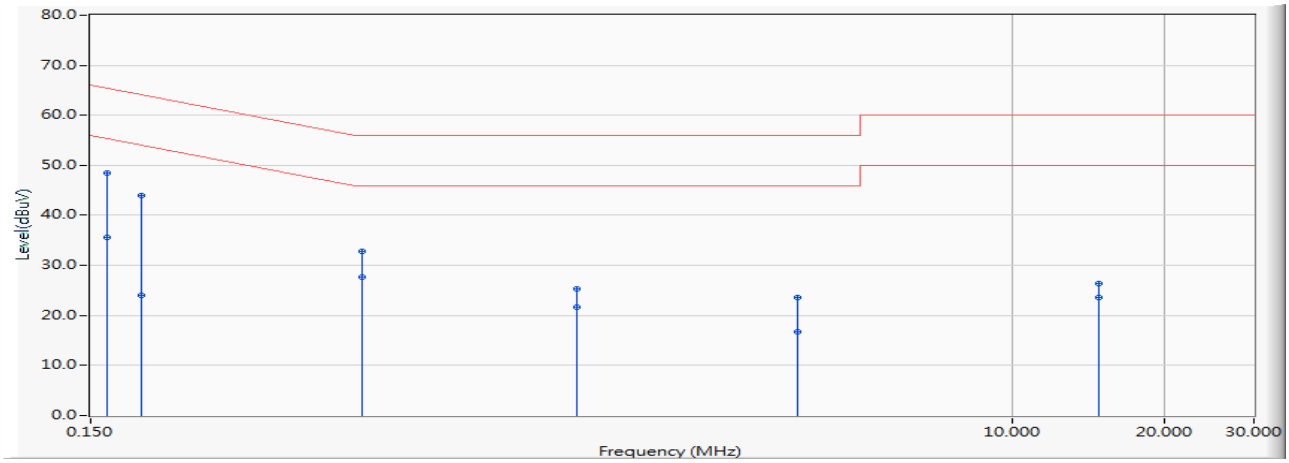


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.162	9.680	39.710	49.390	-15.985	65.375	QUASIPEAK
2		0.162	9.680	20.050	29.730	-25.645	55.375	AVERAGE
3		0.193	9.680	34.290	43.970	-19.938	63.908	QUASIPEAK
4		0.193	9.680	17.220	26.900	-27.008	53.908	AVERAGE
5		0.517	9.685	26.000	35.685	-20.315	56.000	QUASIPEAK
6	*	0.517	9.685	22.400	32.085	-13.915	46.000	AVERAGE
7		1.599	9.796	15.660	25.456	-30.544	56.000	QUASIPEAK
8		1.599	9.796	12.180	21.976	-24.024	46.000	AVERAGE
9		3.822	9.809	14.100	23.909	-32.091	56.000	QUASIPEAK
10		3.822	9.809	8.360	18.169	-27.831	46.000	AVERAGE
11		15.818	10.360	11.080	21.440	-38.560	60.000	QUASIPEAK
12		15.818	10.360	5.610	15.970	-34.030	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2-H	Time : 2018/10/24
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H-B127_LISN(16A)-8 - Line2	Power : AC 120V/60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 4: Transmit_AD883J20 802.15.1_BLE_2440MHz



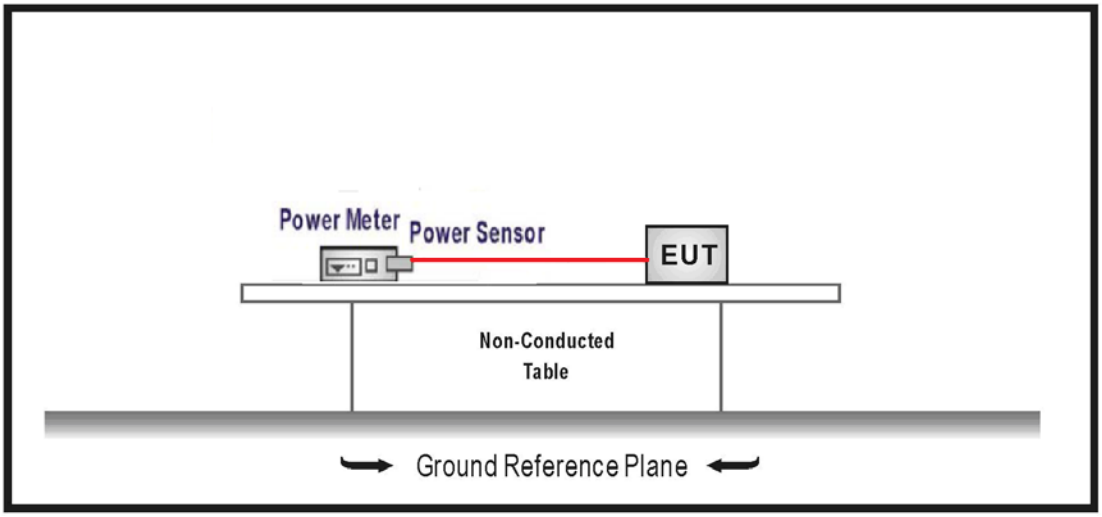
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.162	9.680	38.770	48.450	-16.925	65.375	QUASIPEAK
2		0.162	9.680	25.900	35.580	-19.795	55.375	AVERAGE
3		0.189	9.680	34.290	43.970	-20.108	64.078	QUASIPEAK
4		0.189	9.680	14.300	23.980	-30.098	54.078	AVERAGE
5		0.517	9.685	23.070	32.755	-23.245	56.000	QUASIPEAK
6		0.517	9.685	17.890	27.575	-18.425	46.000	AVERAGE
7		1.373	9.794	15.440	25.234	-30.766	56.000	QUASIPEAK
8		1.373	9.794	11.900	21.694	-24.306	46.000	AVERAGE
9		3.752	9.818	13.880	23.698	-32.302	56.000	QUASIPEAK
10		3.752	9.818	6.860	16.678	-29.322	46.000	AVERAGE
11		14.787	10.309	16.120	26.430	-33.570	60.000	QUASIPEAK
12		14.787	10.309	13.280	23.590	-26.410	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

3. Maximum peak conducted output power

3.1. Test Setup



3.2. Test procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB558074 D01V05 for compliance to FCC 47CFR 15.247 requirements.

3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2017

3.5. Test Result

Product	Wireless-AC2200 Tri Band Gigabit Router		
Test Item	Maximum peak conducted output power		
Test Mode	Mode 1: Transmit_ADP-45BW B		
Date of Test	2018/07/31	Test Site	SR10-H

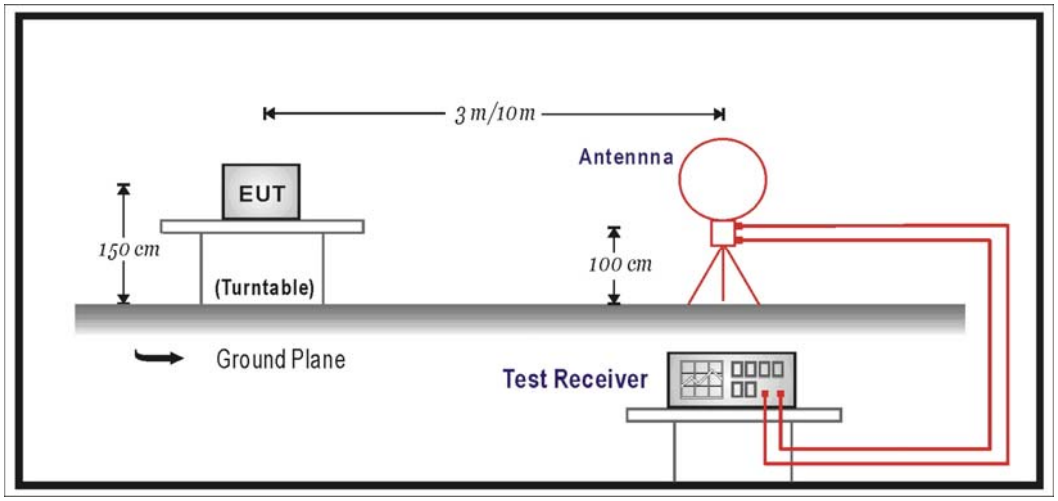
GFSK

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
00	2402	3.110	≦30
19	2440	4.270	≦30
39	2480	5.560	≦30

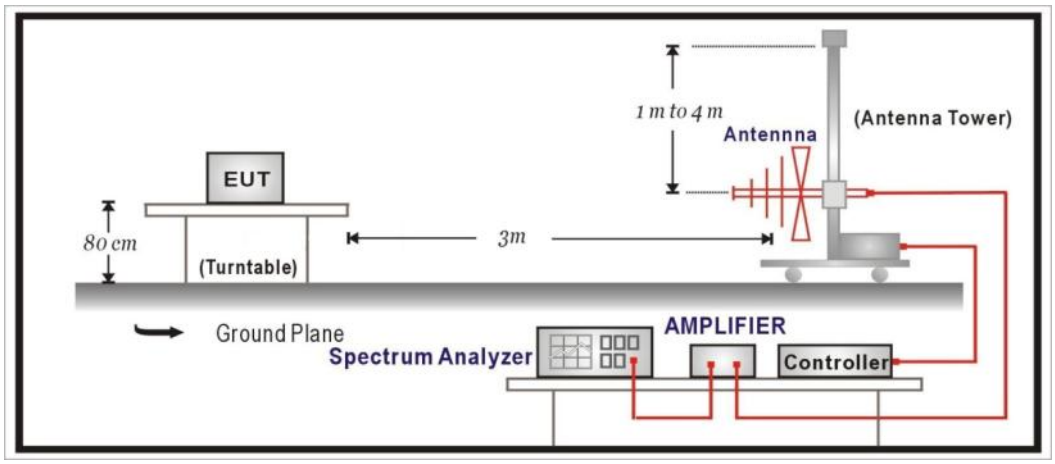
4. Radiated Emission

4.1. Test Setup

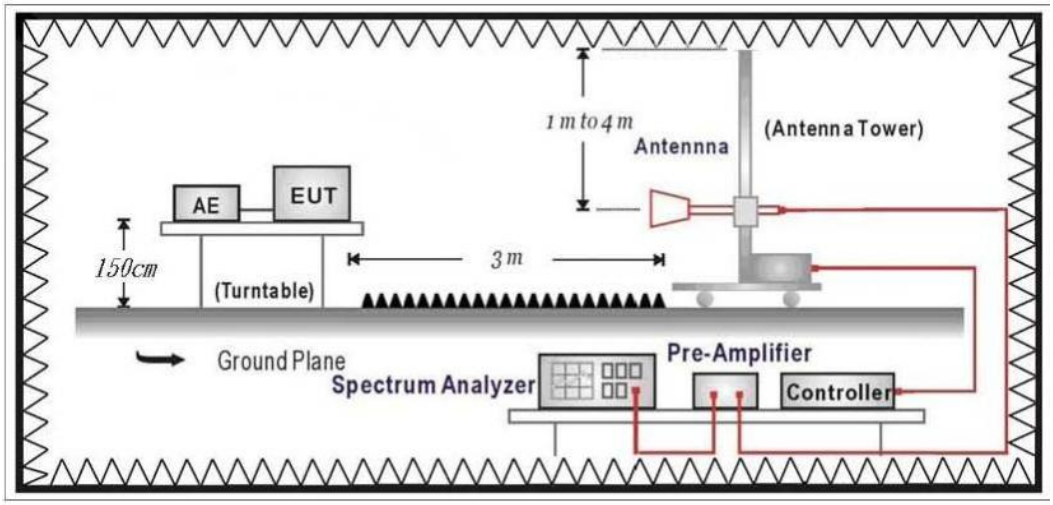
Under 30MHz Test Setup:



Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m	dBuV/m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

Remarks: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the Radiated Emission Band Edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 D01V05 for compliance to FCC 47CFR 15.247 requirements.
The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground.
The turn table can rotate 360 degrees to determine the position of the maximum emission level.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.
On any frequency or frequencies form 9KHz(inculde The the lowest oscillator frequency generated within the device up to the 10th harmonic) to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

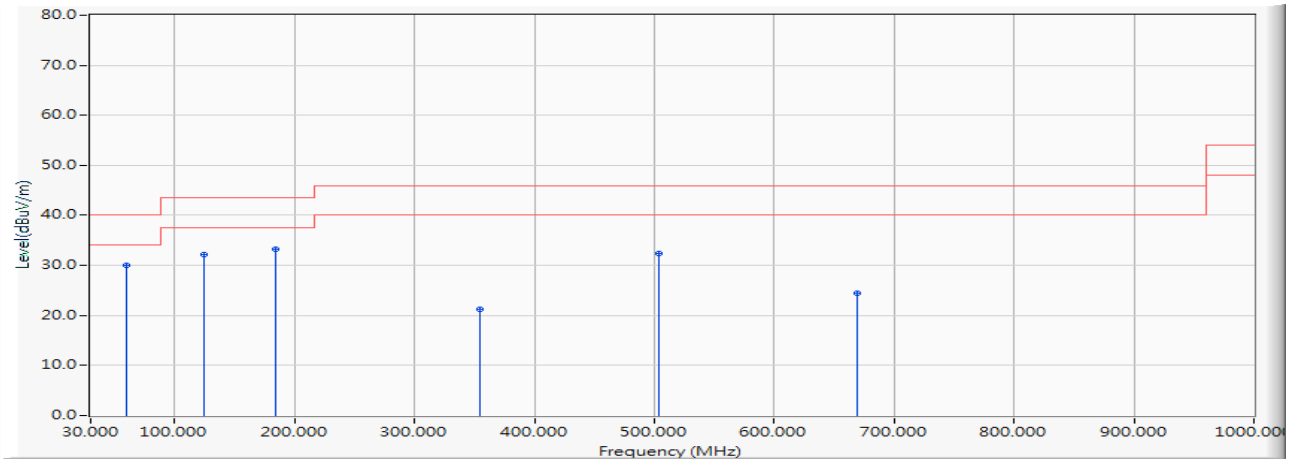
4.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247:2017

4.5. Test Result

30MHz-1GHz Spurious

Site : DEKRA Taiwan CB2-H	Time : 2018/08/04
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB2-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2440MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	59.294	-28.002	58.087	30.085	-9.915	40.000	QUASIPEAK
2		125.060	-21.221	53.393	32.172	-11.328	43.500	QUASIPEAK
3		184.230	-23.980	57.297	33.316	-10.184	43.500	QUASIPEAK
4		354.659	-17.520	38.668	21.149	-24.851	46.000	QUASIPEAK
5		504.136	-14.241	46.608	32.367	-13.633	46.000	QUASIPEAK
6		669.424	-12.003	36.525	24.522	-21.478	46.000	QUASIPEAK

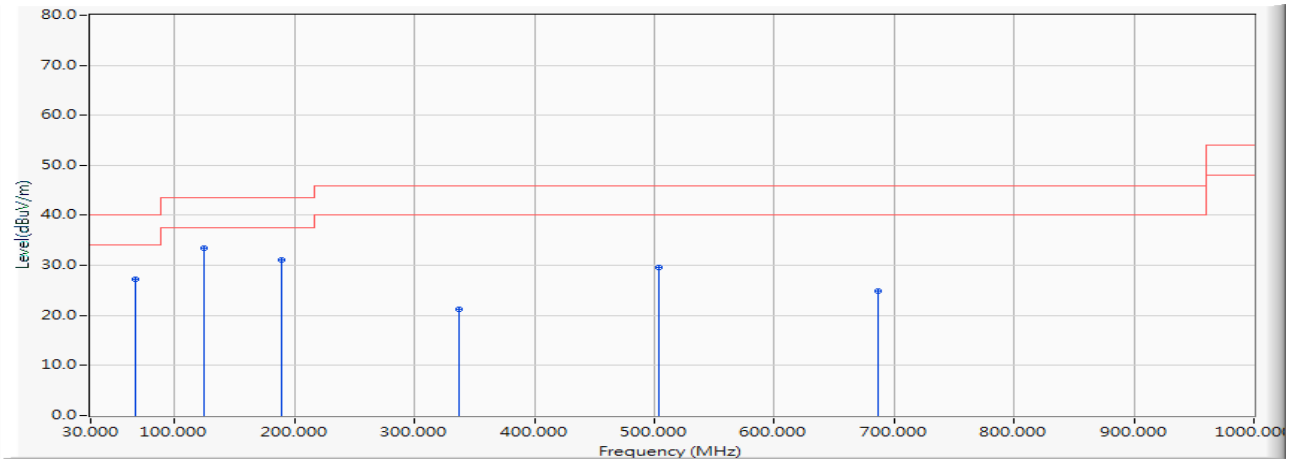
Note:

1. All Reading Levels is Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

4. The Emission under 30MHz were not included is because their levels are too low.

5. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line

Site : DEKRA Taiwan CB2-H	Time : 2018/08/04
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB2-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2440MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		66.763	-27.968	55.174	27.206	-12.794	40.000	QUASIPEAK
2	*	125.060	-21.221	54.621	33.400	-10.100	43.500	QUASIPEAK
3		189.468	-23.708	54.891	31.183	-12.317	43.500	QUASIPEAK
4		336.811	-18.078	39.226	21.147	-24.853	46.000	QUASIPEAK
5		504.039	-14.246	43.849	29.604	-16.396	46.000	QUASIPEAK
6		686.302	-12.096	36.940	24.844	-21.156	46.000	QUASIPEAK

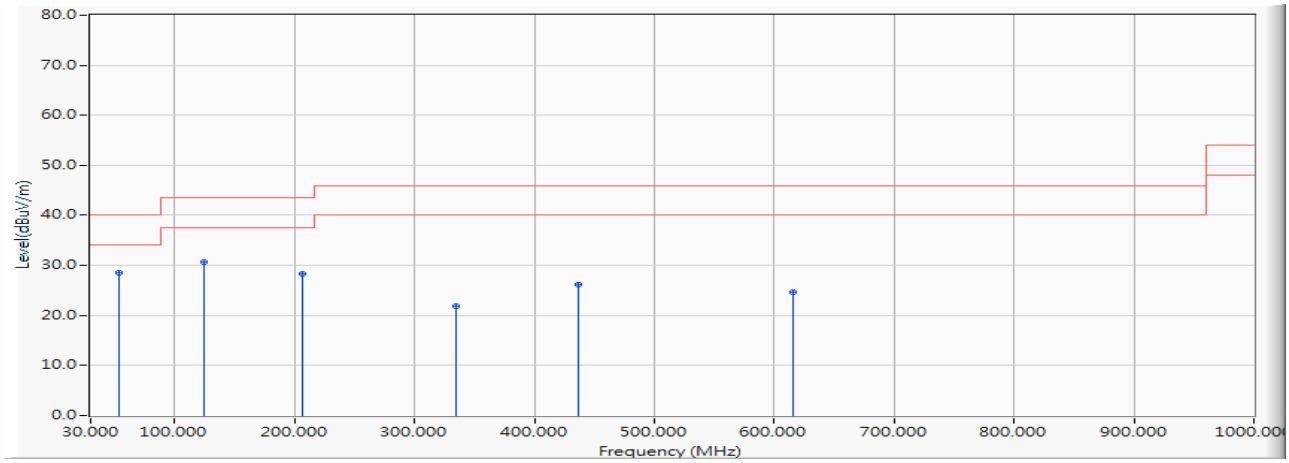
Note:

1. All Reading Levels is Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

4. The Emission under 30MHz were not included is because their levels are too low.

5. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line

Site : DEKRA Taiwan CB2-H	Time : 2018/08/04
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB2-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 2: Transmit_ADP-45BW Y 802.15.1_BLE_2440MHz

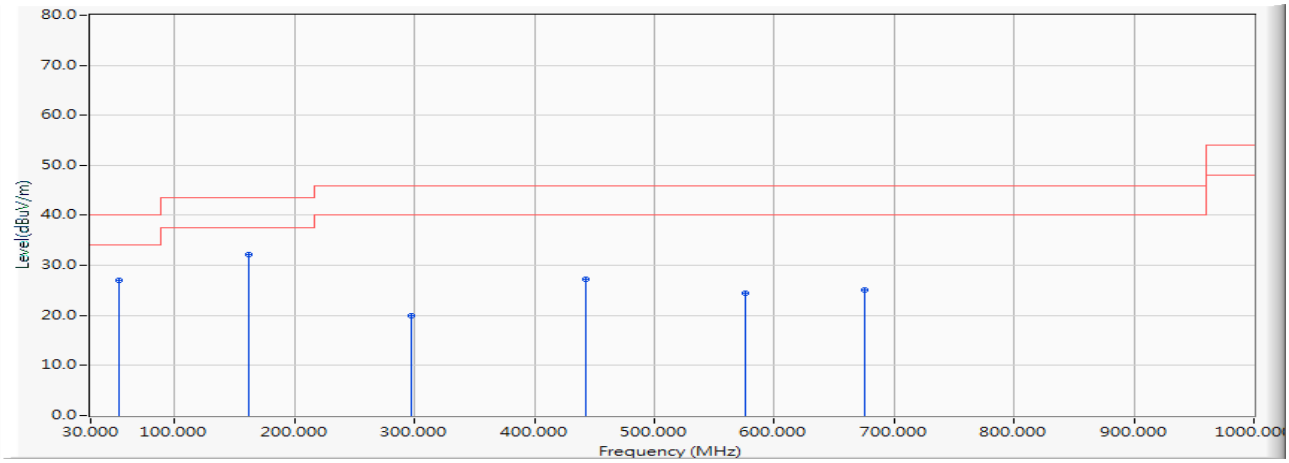


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	54.056	-26.532	54.981	28.449	-11.551	40.000	QUASIPEAK
2		124.963	-21.220	51.931	30.712	-12.788	43.500	QUASIPEAK
3		206.055	-22.881	51.114	28.233	-15.267	43.500	QUASIPEAK
4		334.483	-18.234	40.189	21.955	-24.045	46.000	QUASIPEAK
5		436.236	-15.630	41.846	26.216	-19.784	46.000	QUASIPEAK
6		616.171	-12.420	37.129	24.709	-21.291	46.000	QUASIPEAK

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The Emission under 30MHz were not included is because their levels are too low.
5. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line

Site : DEKRA Taiwan CB2-H	Time : 2018/08/04
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB2-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 2: Transmit_ADP-45BW Y 802.15.1_BLE_2440MHz

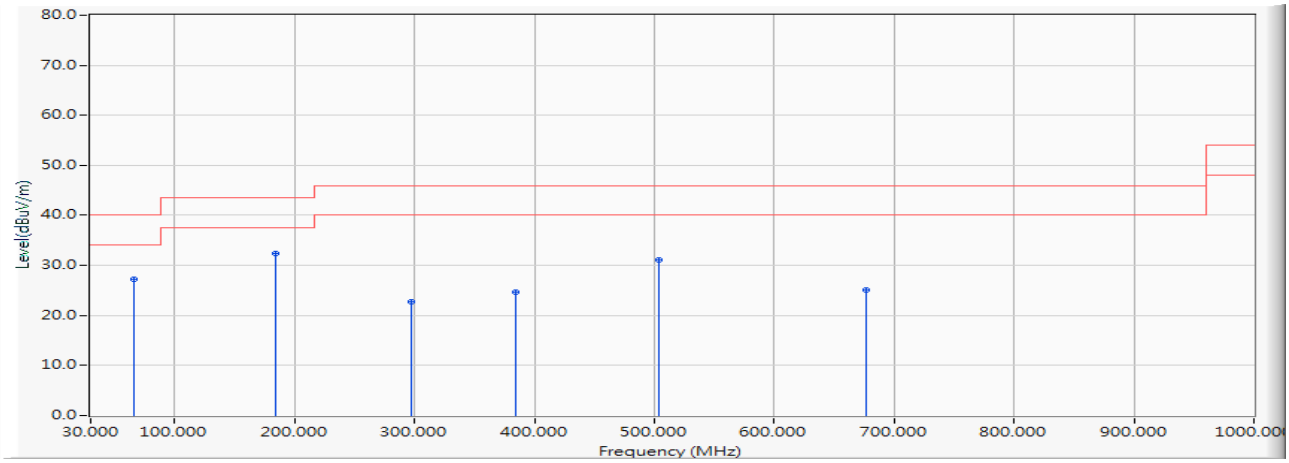


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		54.250	-26.586	53.683	27.097	-12.903	40.000	QUASIPEAK
2	*	161.241	-23.014	55.195	32.181	-11.319	43.500	QUASIPEAK
3		297.041	-19.570	39.501	19.930	-26.070	46.000	QUASIPEAK
4		442.347	-15.401	42.578	27.176	-18.824	46.000	QUASIPEAK
5		576.110	-13.593	37.968	24.375	-21.625	46.000	QUASIPEAK
6		675.438	-11.869	36.933	25.064	-20.936	46.000	QUASIPEAK

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The Emission under 30MHz were not included is because their levels are too low.
5. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line

Site : DEKRA Taiwan CB2-H	Time : 2018/08/04
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB2-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 3: Transmit_AD2066320 802.15.1_BLE_2440MHz

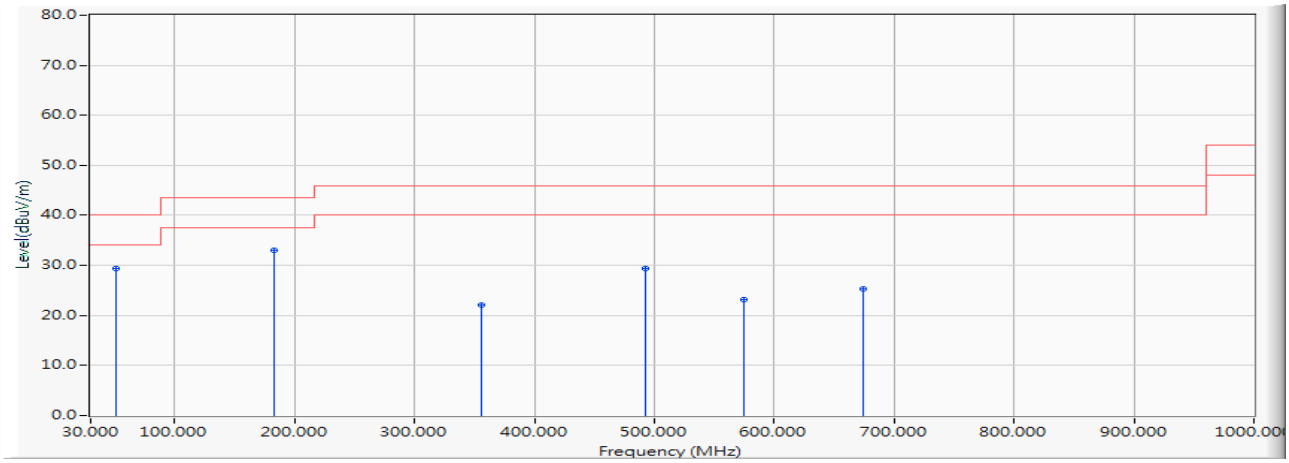


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		65.890	-27.998	55.141	27.143	-12.857	40.000	QUASIPEAK
2	*	184.133	-23.986	56.298	32.312	-11.188	43.500	QUASIPEAK
3		296.750	-19.567	42.206	22.639	-23.361	46.000	QUASIPEAK
4		383.953	-16.755	41.408	24.653	-21.347	46.000	QUASIPEAK
5		504.039	-14.246	45.366	31.121	-14.879	46.000	QUASIPEAK
6		677.087	-11.844	36.856	25.013	-20.987	46.000	QUASIPEAK

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The Emission under 30MHz were not included is because their levels are too low.
5. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line

Site : DEKRA Taiwan CB2-H	Time : 2018/08/04
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB2-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 3: Transmit_AD2066320 802.15.1_BLE_2440MHz

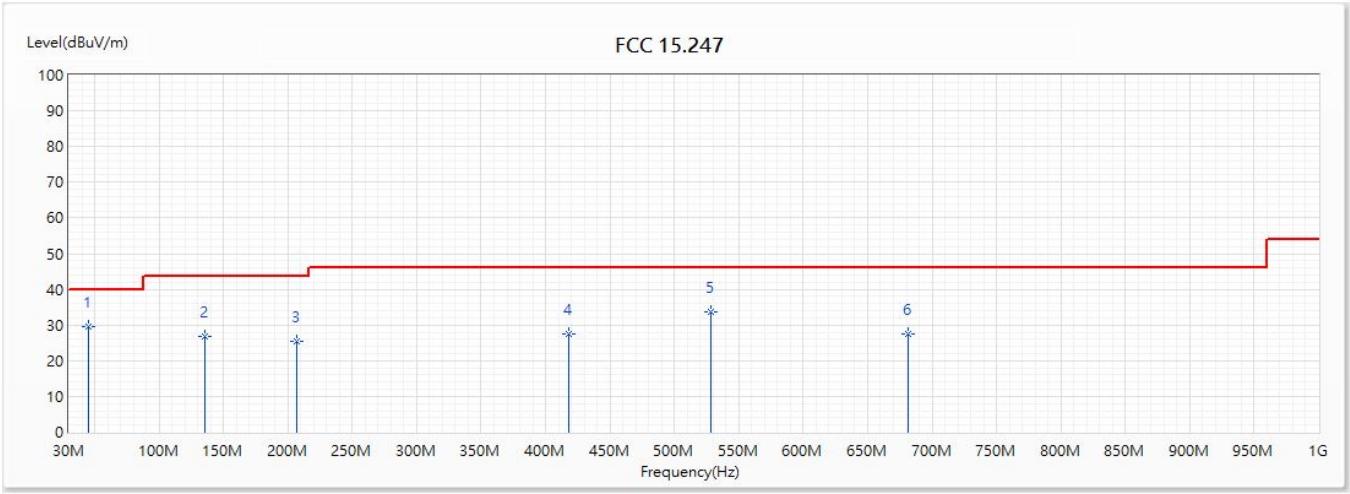


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		50.855	-25.631	55.072	29.442	-10.558	40.000	QUASIPEAK
2	*	182.775	-24.056	57.032	32.976	-10.524	43.500	QUASIPEAK
3		356.211	-17.503	39.541	22.038	-23.962	46.000	QUASIPEAK
4		492.011	-14.532	43.962	29.430	-16.570	46.000	QUASIPEAK
5		574.364	-13.490	36.680	23.191	-22.809	46.000	QUASIPEAK
6		673.983	-11.892	37.108	25.215	-20.785	46.000	QUASIPEAK

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The Emission under 30MHz were not included is because their levels are too low.
5. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line

Site :	CB2-H	Engineer :	Elwin
Model No :	Lyra Voice	Test Date :	2018/10/25
Test Voltage :	AC 120V / 60Hz	Polarity :	Horizontal
Test Mode :	Mode 4: Transmit_AD883J20		
Note :	802.15.1_BLE_2440MHz		

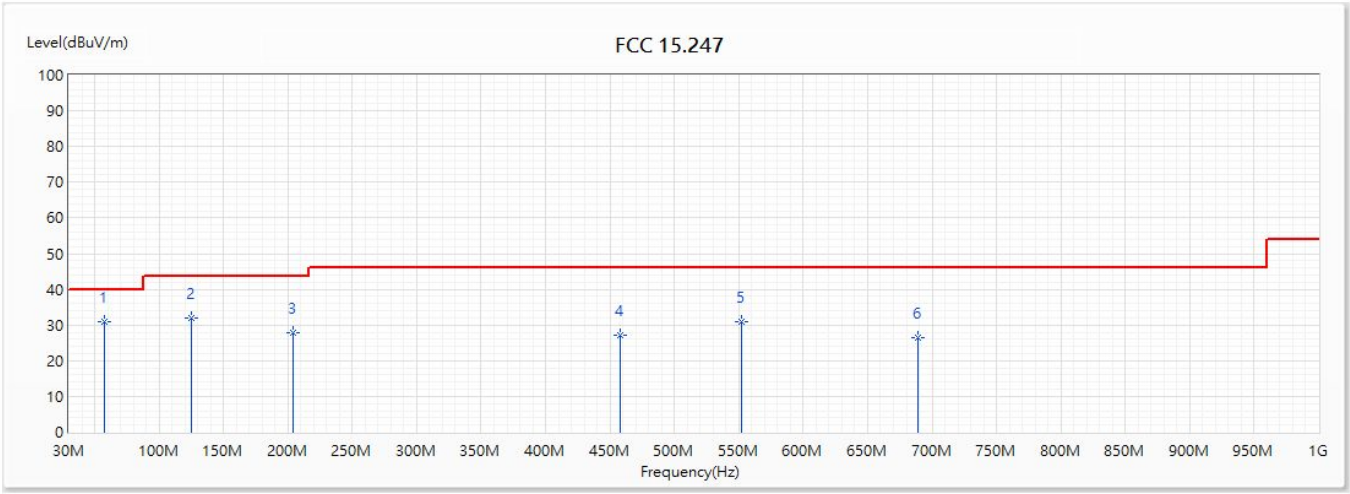


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	45.229	29.43	40.00	-10.57	52.05	-22.62	QP
2	135.148	26.92	43.50	-16.58	48.75	-21.83	QP
3	207.025	25.54	43.50	-17.96	48.58	-23.04	QP
4	417.806	27.52	46.00	-18.48	43.17	-15.65	QP
5	527.998	33.71	46.00	-12.29	47.87	-14.16	QP
6	681.646	27.63	46.00	-18.37	40.14	-12.51	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor
4. The Emission under 30MHz were not included is because their levels are too low.
5. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line

Site :	CB2-H	Engineer :	Elwin
Model No :	Lyra Voice	Test Date :	2018/10/25
Test Voltage :	AC 120V / 60Hz	Polarity :	Vertical
Test Mode :	Mode 4: Transmit_AD883J20		
Note :	802.15.1_BLE_2440MHz		



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	58.033	30.99	40.00	-9.01	58.80	-27.81	QP
2	124.963	31.80	43.50	-11.70	53.44	-21.64	QP
3	203.921	27.87	43.50	-15.63	51.09	-23.22	QP
4	457.77	27.08	46.00	-18.92	42.14	-15.06	QP
5	551.957	31.00	46.00	-15.00	44.85	-13.85	QP
6	689.018	26.39	46.00	-19.61	38.85	-12.46	QP

Note:

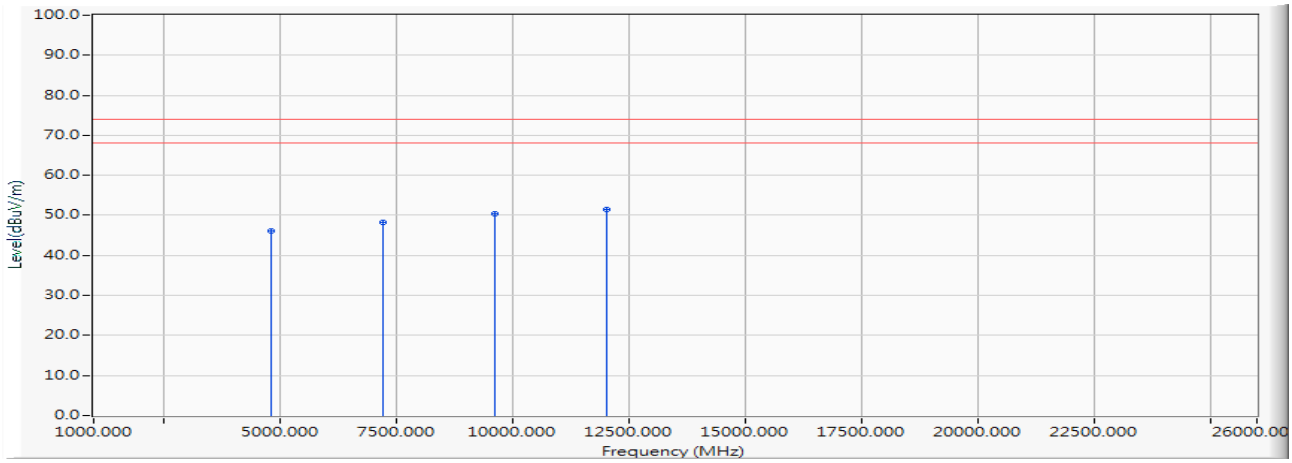
1. All Reading Levels is Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor

4. The Emission under 30MHz were not included is because their levels are too low.

5. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line

Harmonic & Spurious:

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2402MHz

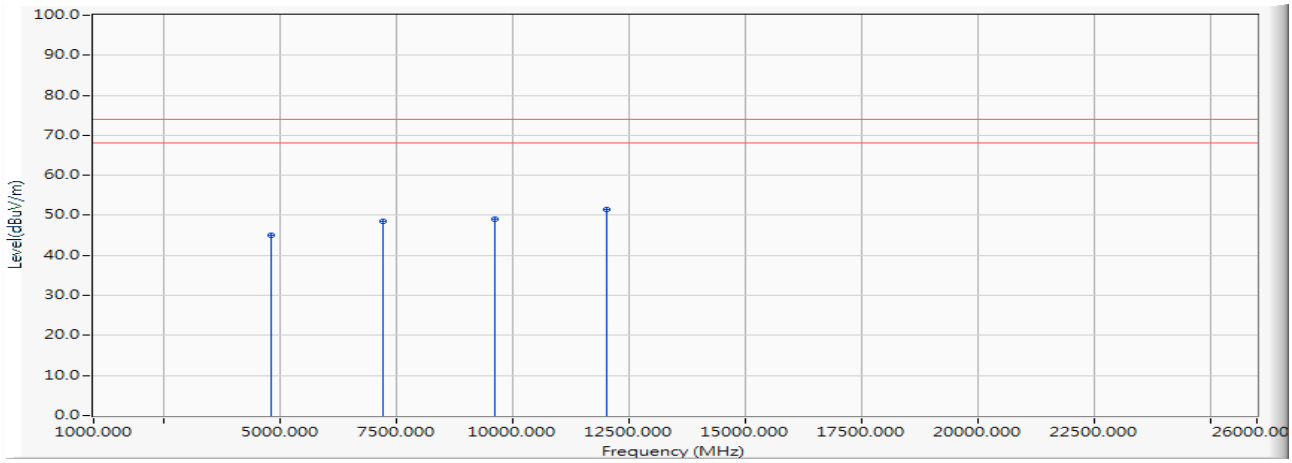


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.525	-0.207	46.410	46.203	-27.797	74.000	PEAK
2		7206.585	6.975	41.180	48.155	-25.845	74.000	PEAK
3		9608.523	12.543	37.810	50.352	-23.648	74.000	PEAK
4	*	12010.352	15.515	35.905	51.420	-22.580	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are too low.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2402MHz

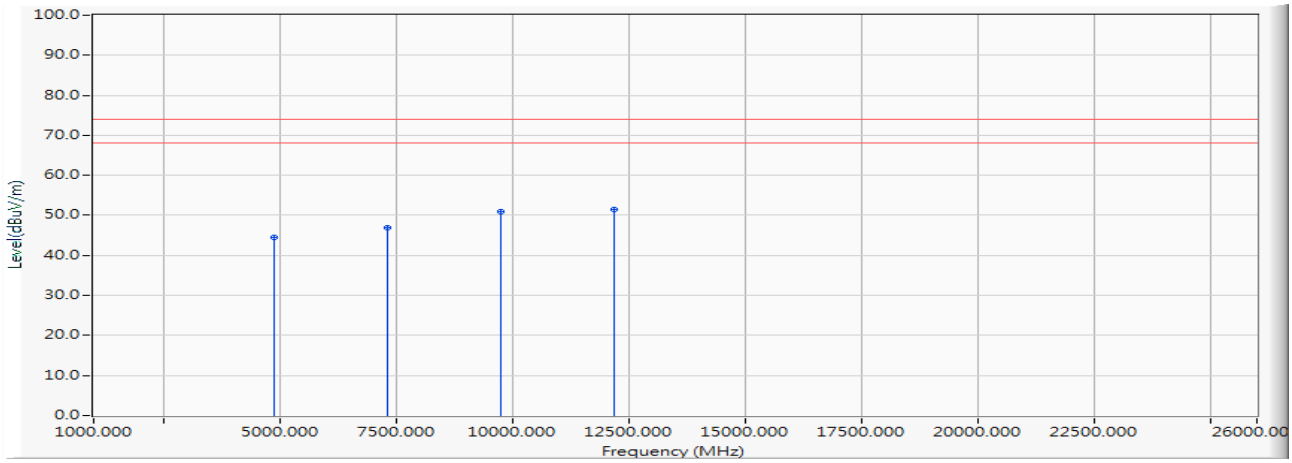


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.558	-0.207	45.330	45.123	-28.877	74.000	PEAK
2		7206.856	6.978	41.450	48.428	-25.572	74.000	PEAK
3		9608.638	12.543	36.610	49.153	-24.847	74.000	PEAK
4	*	12010.968	15.513	36.019	51.531	-22.469	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are too low.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2440MHz

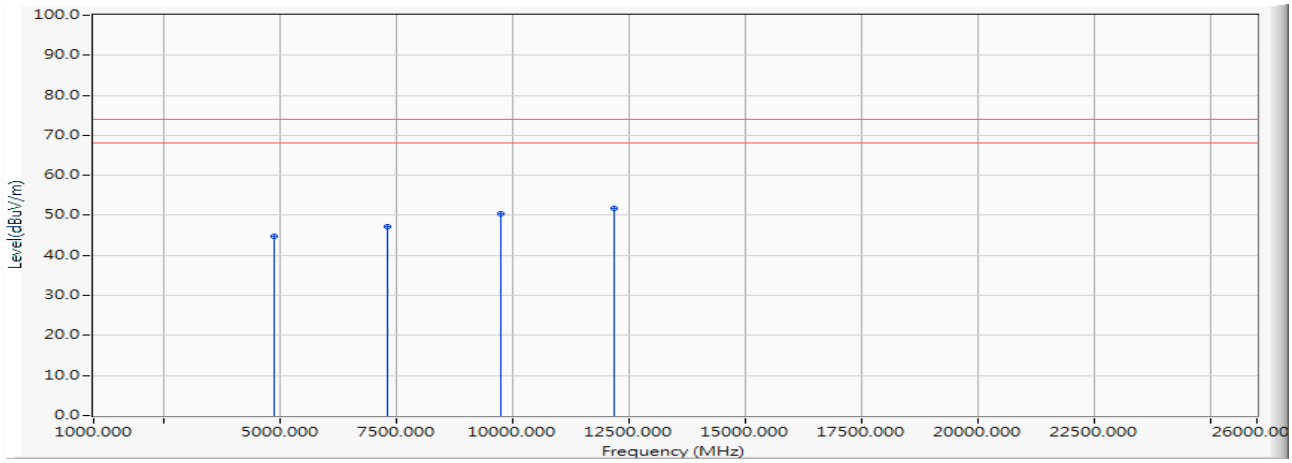


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4880.527	-0.125	44.580	44.455	-29.545	74.000	PEAK
2		7320.224	7.438	39.550	46.987	-27.013	74.000	PEAK
3		9760.551	12.865	38.190	51.056	-22.944	74.000	PEAK
4	*	12200.257	14.851	36.622	51.473	-22.527	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are too low.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2440MHz

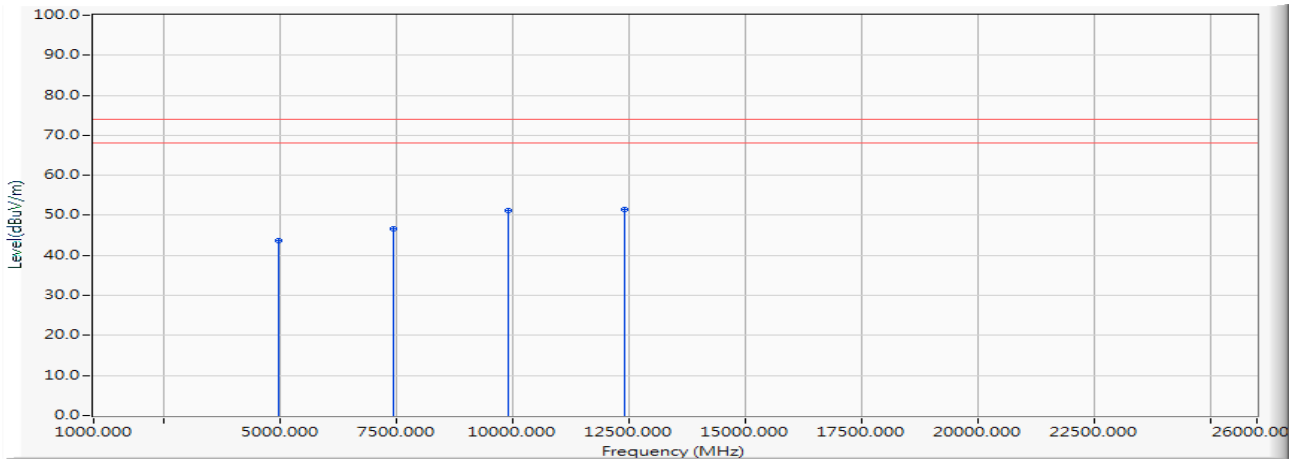


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4880.569	-0.125	44.970	44.845	-29.155	74.000	PEAK
2		7321.857	7.443	39.810	47.253	-26.747	74.000	PEAK
3		9761.437	12.867	37.590	50.457	-23.543	74.000	PEAK
4	*	12200.968	14.849	36.920	51.768	-22.232	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are too low.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2480MHz

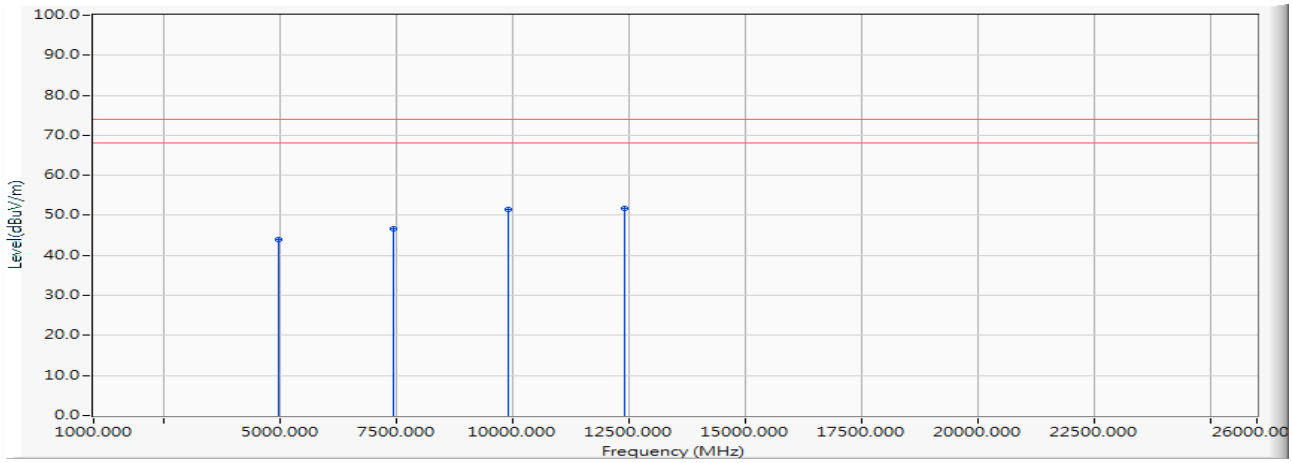


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.385	-0.034	43.820	43.786	-30.214	74.000	PEAK
2		7440.114	7.868	38.830	46.699	-27.301	74.000	PEAK
3		9921.687	13.093	38.070	51.164	-22.836	74.000	PEAK
4	*	12401.067	15.741	35.802	51.543	-22.457	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are too low.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2480MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.147	-0.035	44.040	44.006	-29.994	74.000	PEAK
2		7441.546	7.874	38.820	46.694	-27.306	74.000	PEAK
3		9921.165	13.093	38.360	51.453	-22.547	74.000	PEAK
4	*	12402.857	15.754	35.992	51.745	-22.255	74.000	PEAK

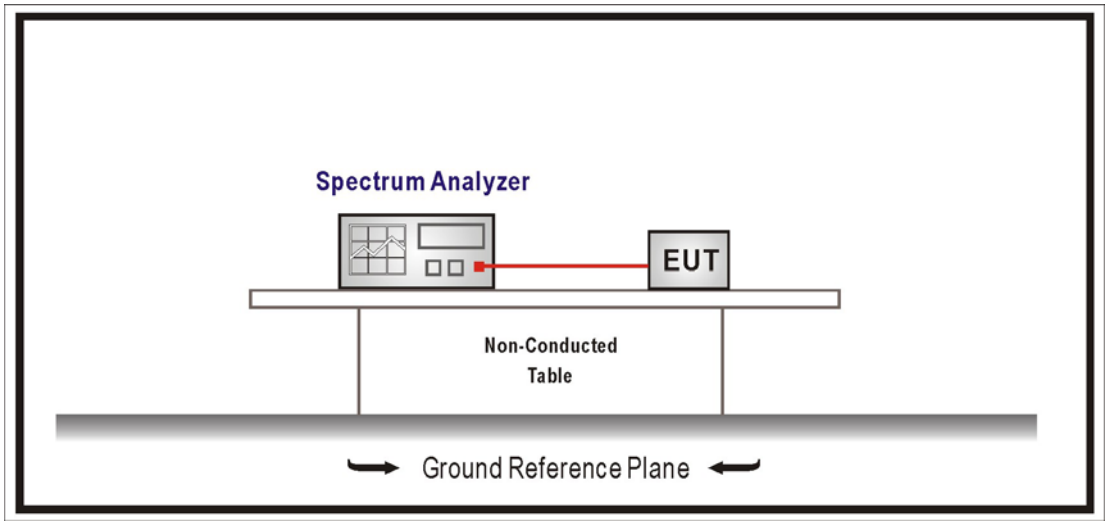
Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are too low.

5. RF antenna conducted test

5.1. Test Setup

RF Conducted Measurement:



5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

5.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 D01V05 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

5.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2017

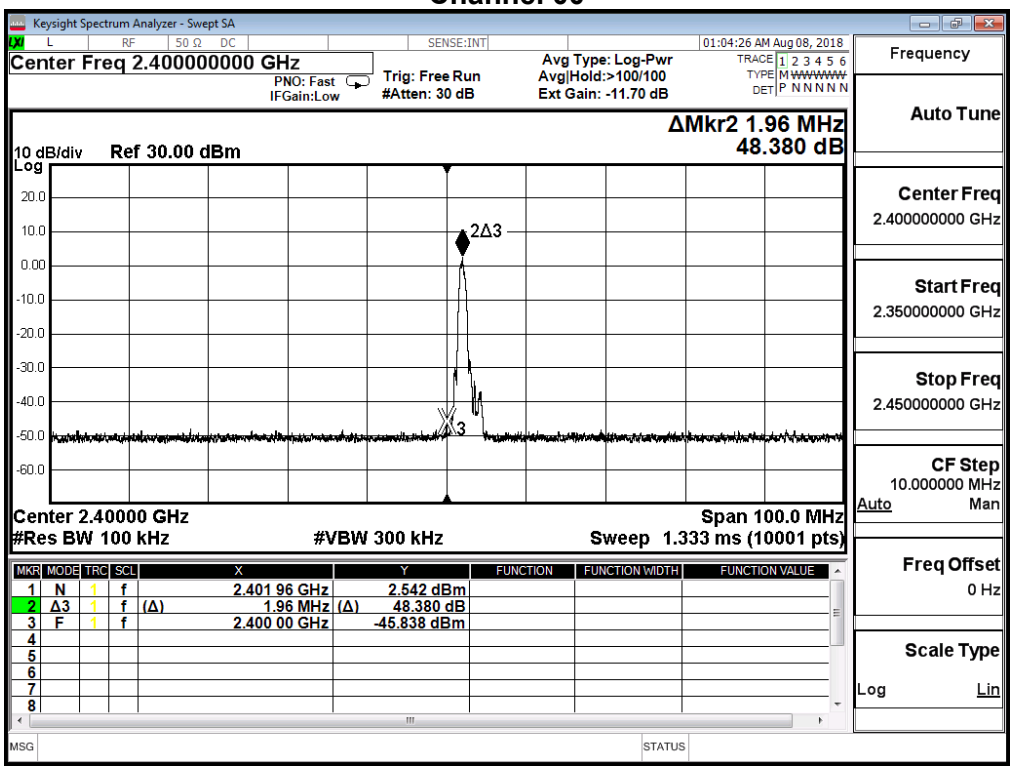
5.5. Test Result

Product	Wireless-AC2200 Tri Band Gigabit Router		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit_ADP-45BW B		
Date of Test	2018/07/05	Test Site	SR10-H

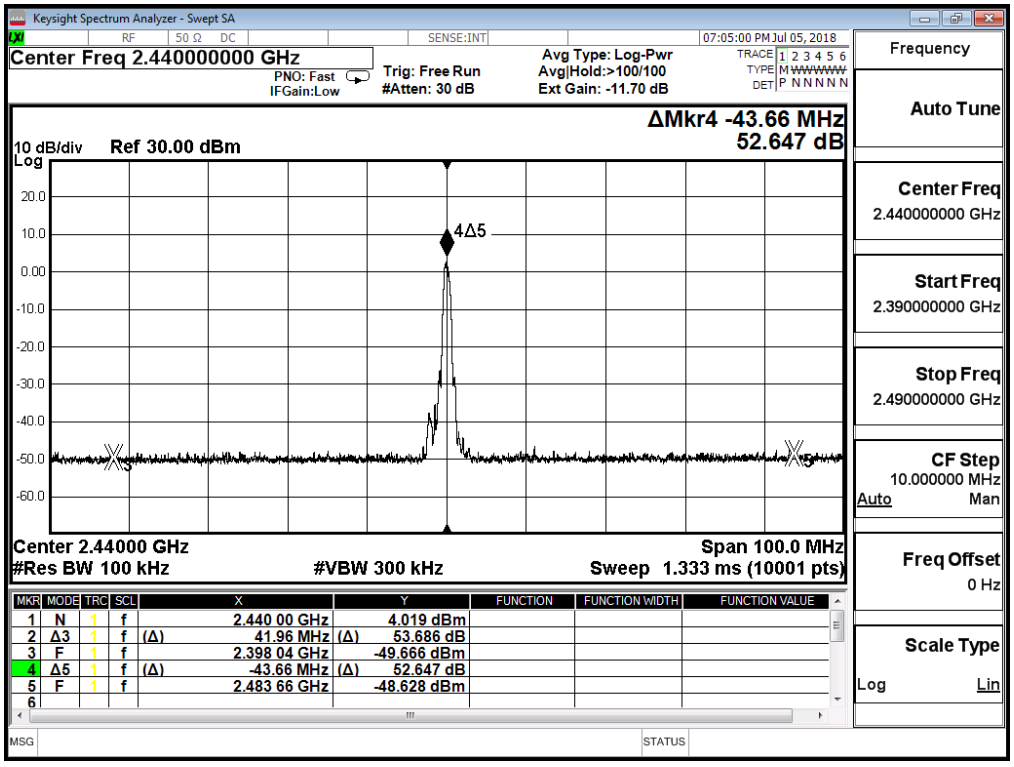
GFSK

Channel	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)
00	2402	43.855	≧30
19	2440	47.042	≧30
39	2480	43.955	≧30

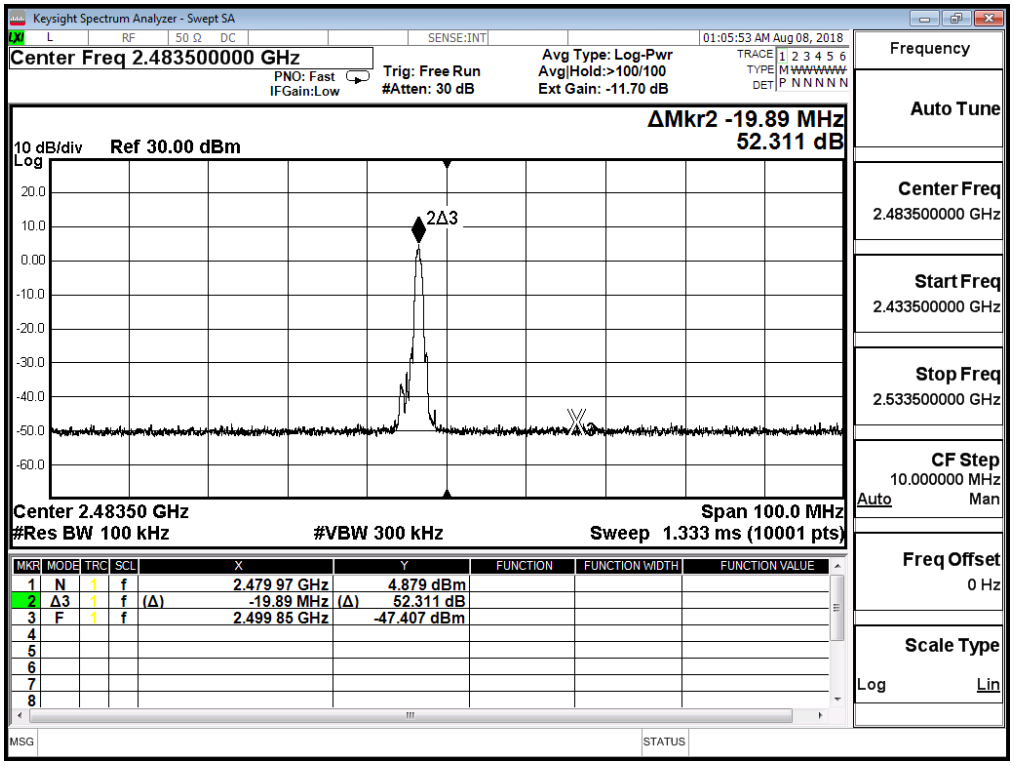
Channel 00



Channel 19

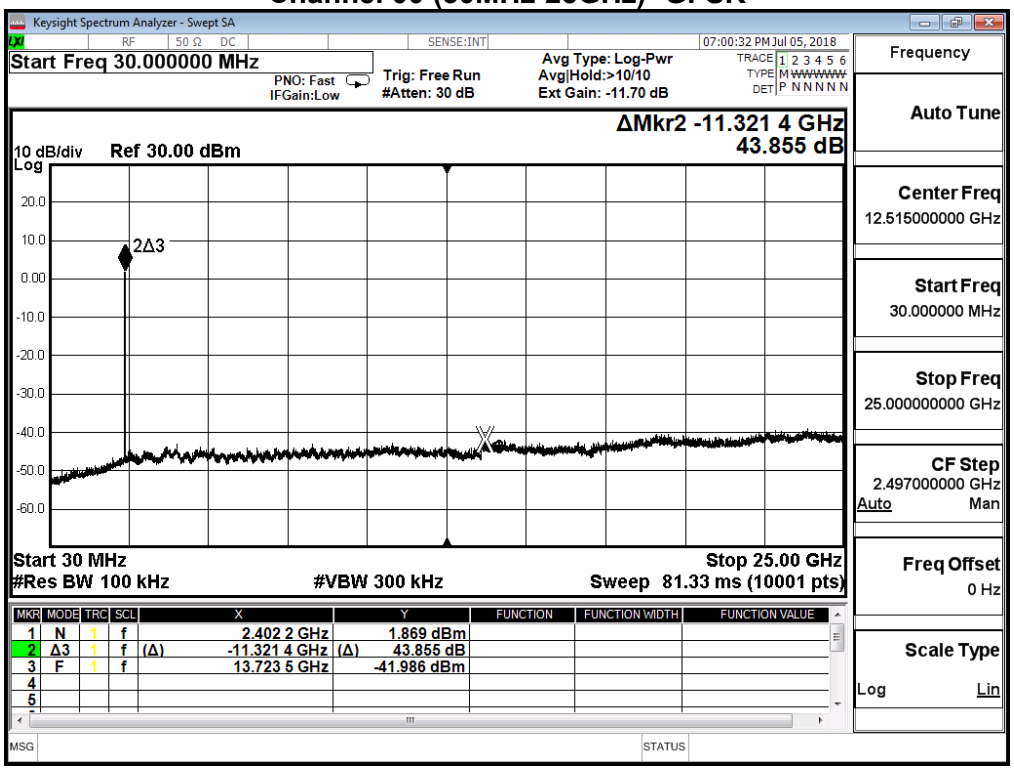


Channel 39

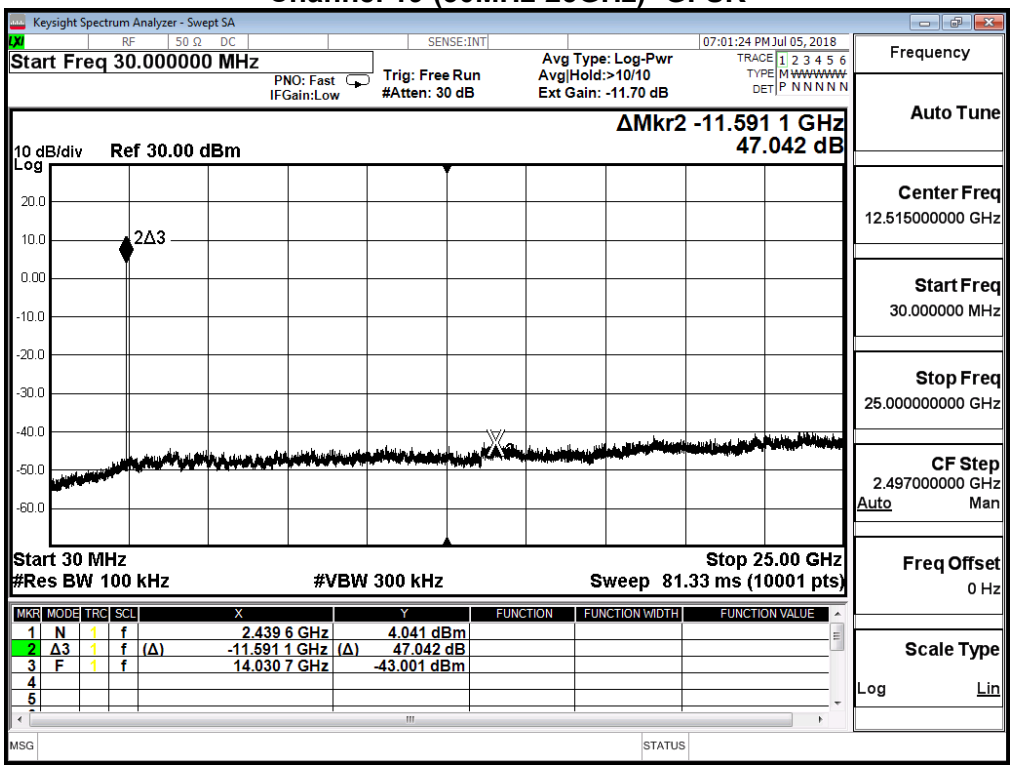


Product	Wireless-AC2200 Tri Band Gigabit Router		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit_ADP-45BW B		
Date of Test	2018/07/05	Test Site	SR10-H

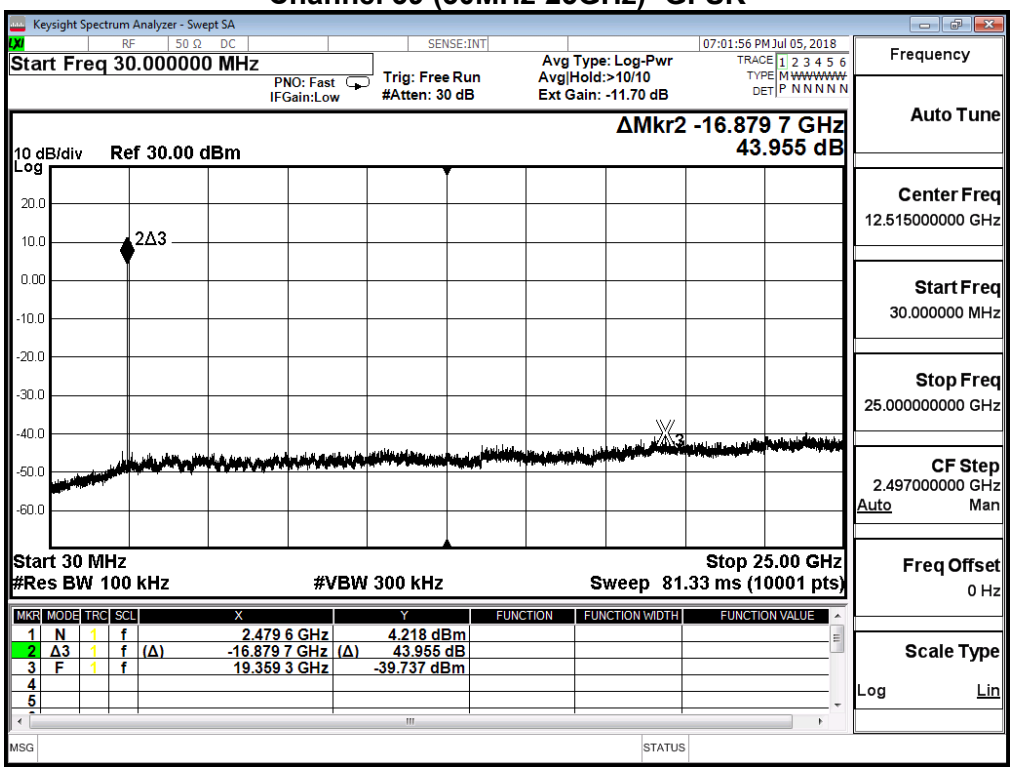
Channel 00 (30MHz-25GHz)- GFSK



Channel 19 (30MHz-25GHz)- GFSK



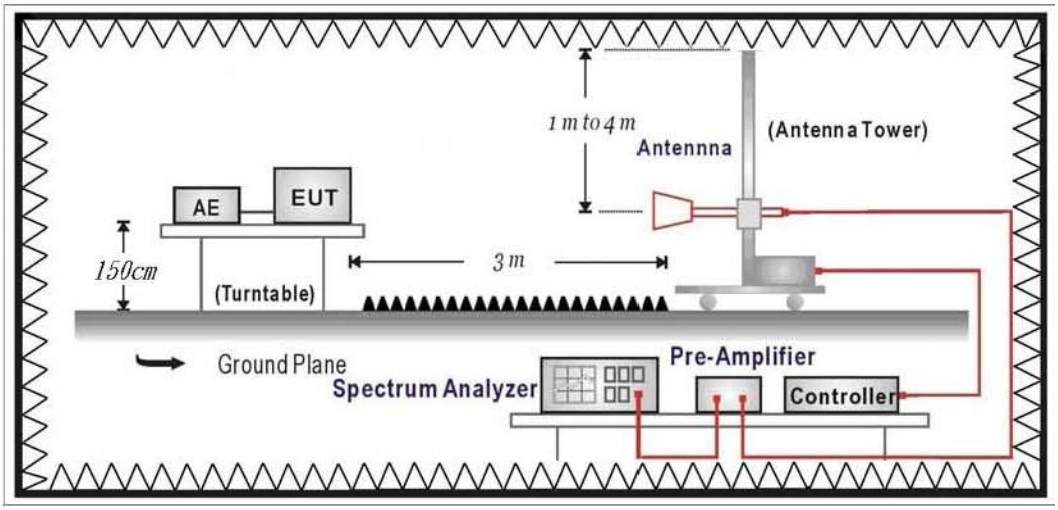
Channel 39 (30MHz-25GHz)- GFSK



6. Radiated Emission Band Edge

6.1. Test Setup

RF Radiated Measurement:



6.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.3. Test Procedure

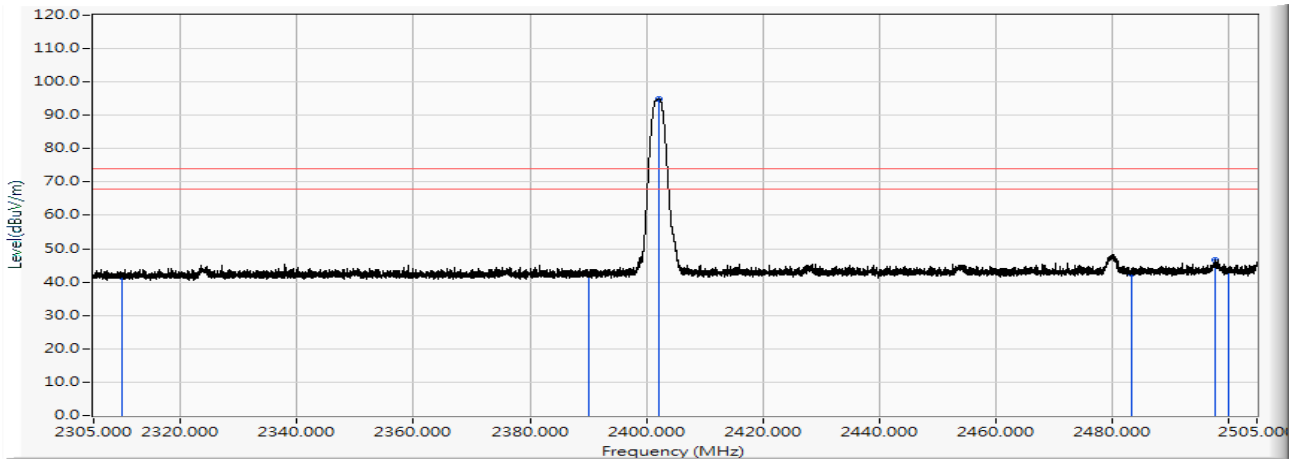
The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 D01V05 for compliance to FCC 47CFR 15.247 requirements.
The EUT and its simulators are placed on a turn table which is 0.8 meter above ground.
The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

6.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247:2017

6.5. Test Result

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2402MHz

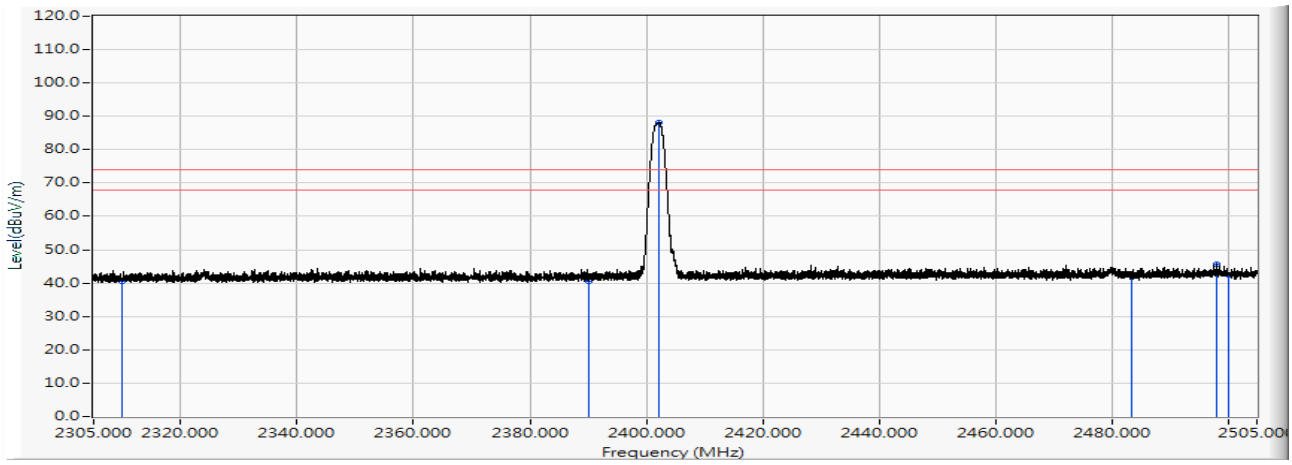


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.384	29.051	41.435	-32.565	74.000	PEAK
2		2390.000	12.911	29.534	42.445	-31.555	74.000	PEAK
3	*	2402.280	12.992	82.061	95.053	21.053	74.000	PEAK
4		2483.500	13.527	28.788	42.315	-31.685	74.000	PEAK
5		2497.860	13.619	32.911	46.530	-27.470	74.000	PEAK
6		2500.000	13.629	29.863	43.492	-30.508	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are lower than 20dB away from limit.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2402MHz

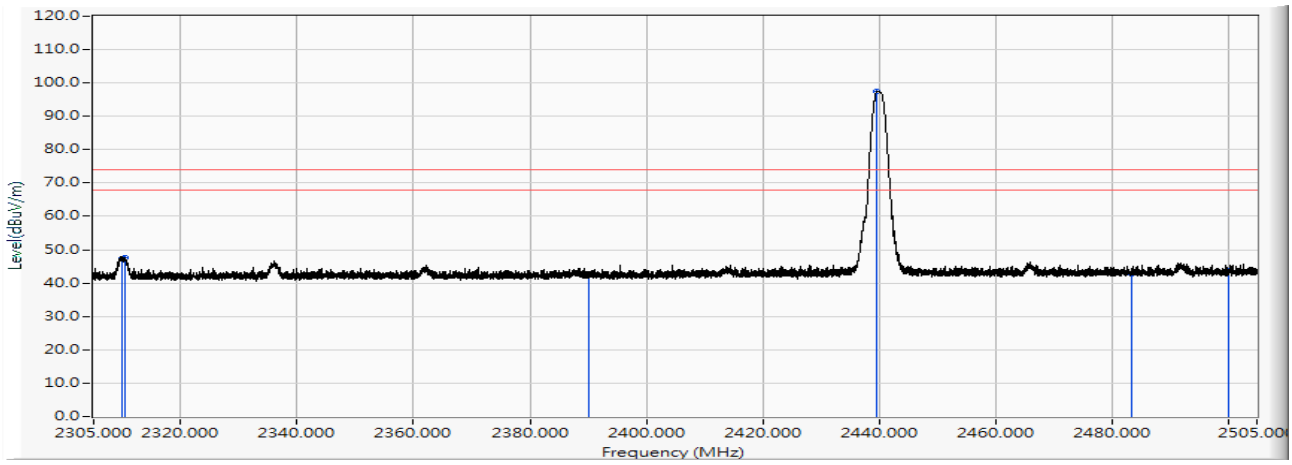


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.384	28.076	40.460	-33.540	74.000	PEAK
2		2390.000	12.911	27.582	40.493	-33.507	74.000	PEAK
3	*	2402.260	12.992	75.039	88.031	14.031	74.000	PEAK
4		2483.500	13.527	28.637	42.164	-31.836	74.000	PEAK
5		2498.160	13.620	32.061	45.681	-28.319	74.000	PEAK
6		2500.000	13.629	28.983	42.612	-31.388	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are lower than 20dB away from limit.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2440MHz

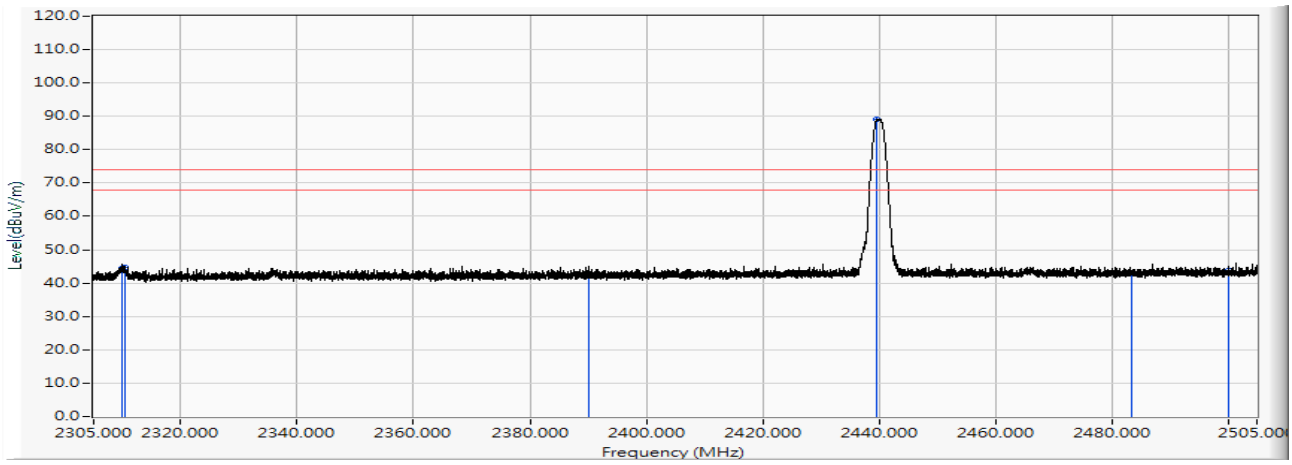


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.384	34.812	47.196	-26.804	74.000	PEAK
2		2310.260	12.386	35.270	47.656	-26.344	74.000	PEAK
3		2390.000	12.911	29.814	42.725	-31.275	74.000	PEAK
4	*	2439.740	13.239	84.351	97.590	23.590	74.000	PEAK
5		2483.500	13.527	29.399	42.926	-31.074	74.000	PEAK
6		2500.000	13.629	30.230	43.859	-30.141	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are lower than 20dB away from limit.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2440MHz

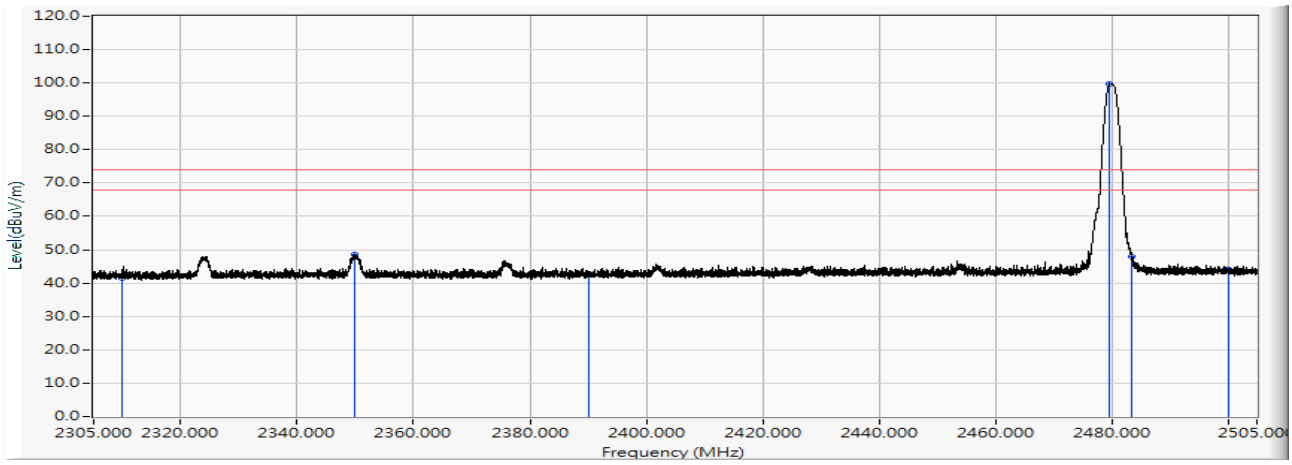


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.384	32.021	44.405	-29.595	74.000	PEAK
2		2310.400	12.387	32.451	44.838	-29.162	74.000	PEAK
3		2390.000	12.911	29.458	42.369	-31.631	74.000	PEAK
4	*	2439.700	13.238	75.889	89.128	15.128	74.000	PEAK
5		2483.500	13.527	29.120	42.647	-31.353	74.000	PEAK
6		2500.000	13.629	29.965	43.594	-30.406	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are lower than 20dB away from limit.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2480MHz

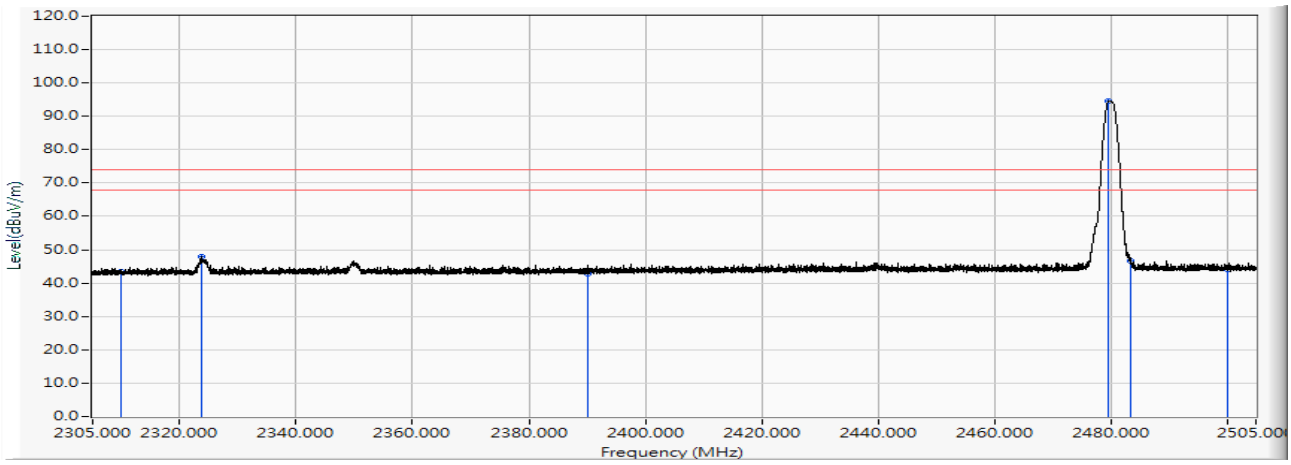


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.384	28.963	41.347	-32.653	74.000	PEAK
2		2349.800	12.646	35.870	48.516	-25.484	74.000	PEAK
3		2390.000	12.911	29.900	42.811	-31.189	74.000	PEAK
4	*	2479.720	13.502	86.336	99.838	25.838	74.000	PEAK
5		2483.500	13.527	34.549	48.076	-25.924	74.000	PEAK
6		2500.000	13.629	30.512	44.141	-29.859	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are lower than 20dB away from limit.

Site : DEKRA Taiwan CB2-H	Time : 2018/07/03
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB2-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : AC 120V / 60Hz
EUT : Wireless-AC2200 Tri Band Gigabit Router	Note : Mode 1: Transmit_ADP-45BW B 802.15.1_BLE_2480MHz



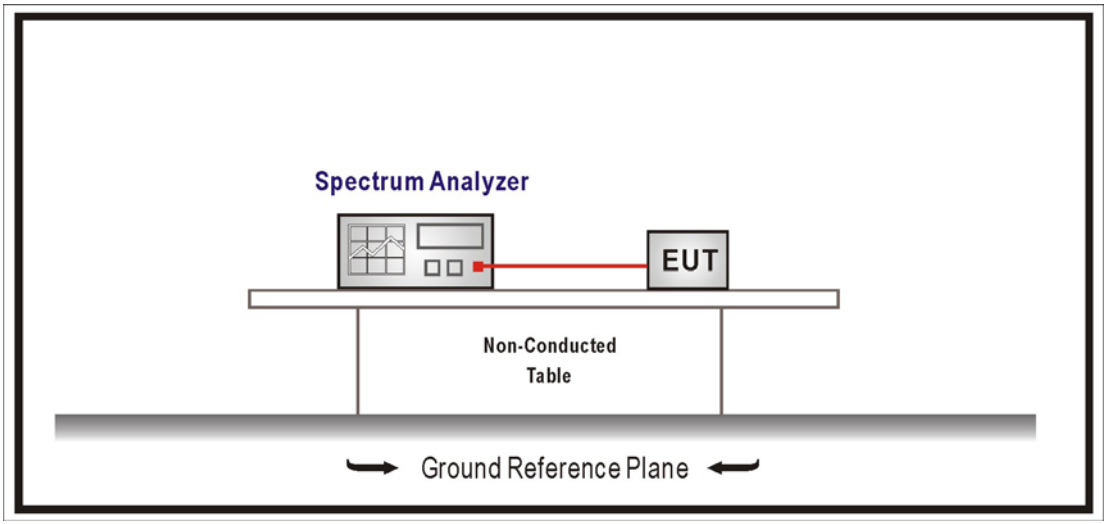
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2310.000	12.384	31.045	43.429	-30.571	74.000	PEAK
2		2323.680	12.475	35.335	47.809	-26.191	74.000	PEAK
3		2390.000	12.911	29.996	42.907	-31.093	74.000	PEAK
4	*	2479.740	13.502	81.196	94.698	20.698	74.000	PEAK
5		2483.500	13.527	32.989	46.516	-27.484	74.000	PEAK
6		2500.000	13.629	30.591	44.220	-29.780	74.000	PEAK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The Emission above 13GHz were not included is because their levels are lower than 20dB away from limit.

7. Occupied Bandwidth & DTS Bandwidth

7.1. Test Setup



7.2. Limits

The 6 dB bandwidth: ≧ 500 kHz.

Occupied Bandwidth: NA

7.3. Test Procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB558074 D01V05 for compliance to FCC 47CFR 15.247 requirements.

7.4. Test Specification

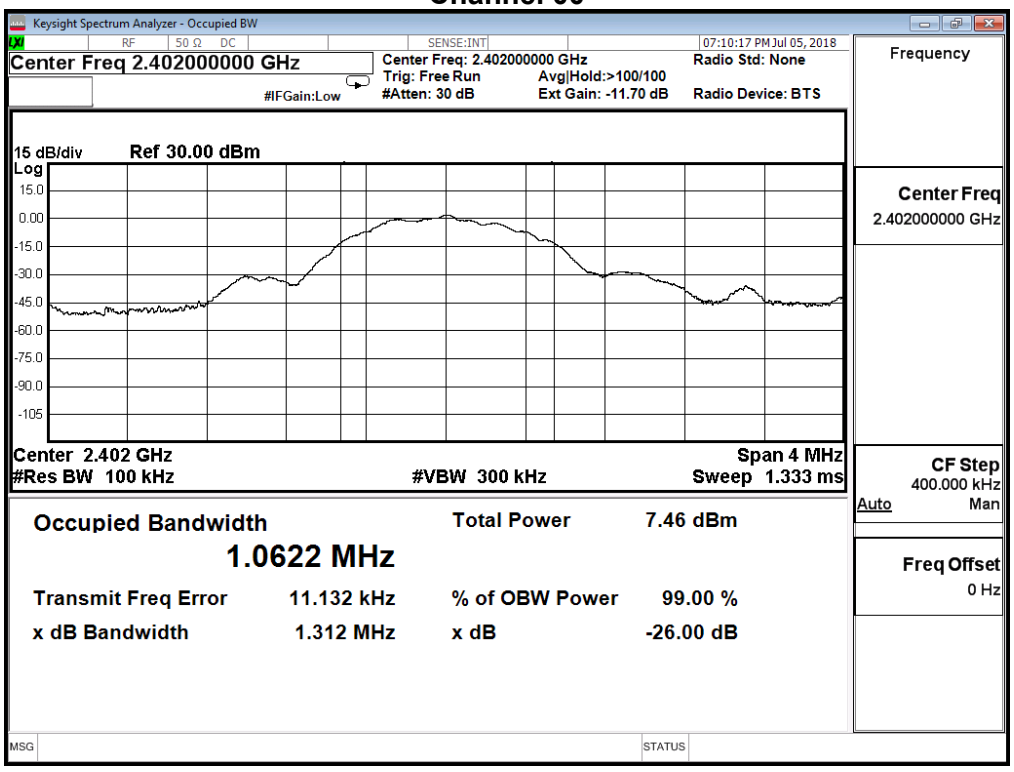
According to FCC Part 15 Subpart C Paragraph 15.247:2017

7.5. Test Result

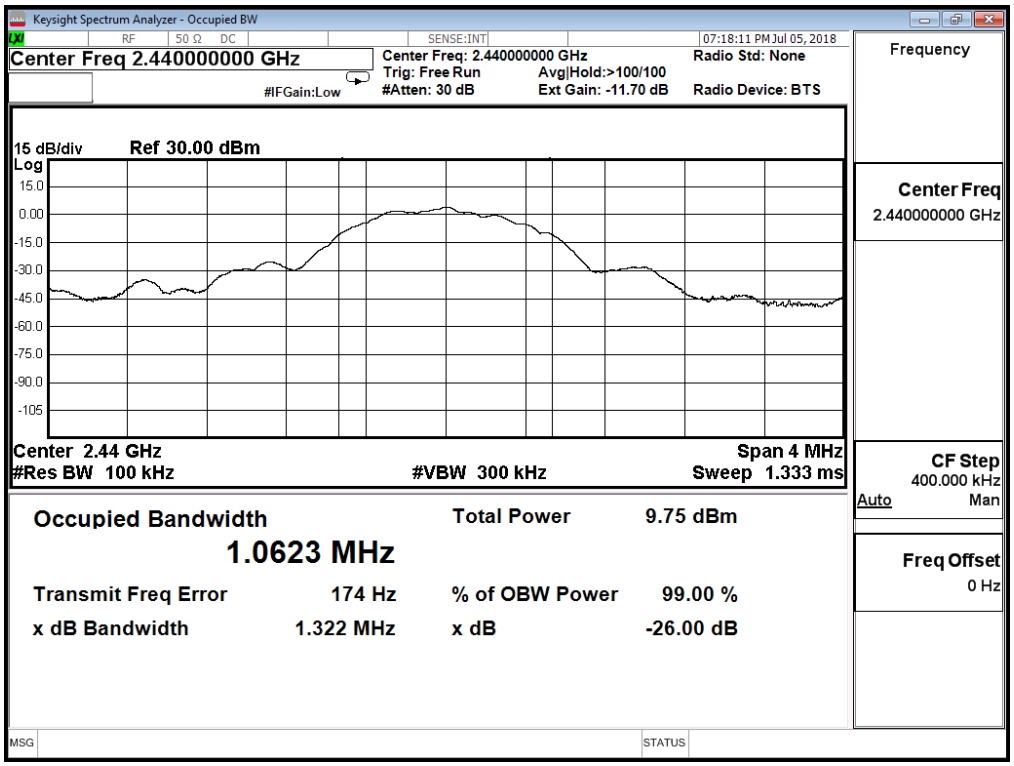
Product	Wireless-AC2200 Tri Band Gigabit Router		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit_ADP-45BW B		
Date of Test	2018/07/05	Test Site	SR10-H

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)
00	2402	1.062	--
19	2440	1.062	--
39	2480	1.062	--

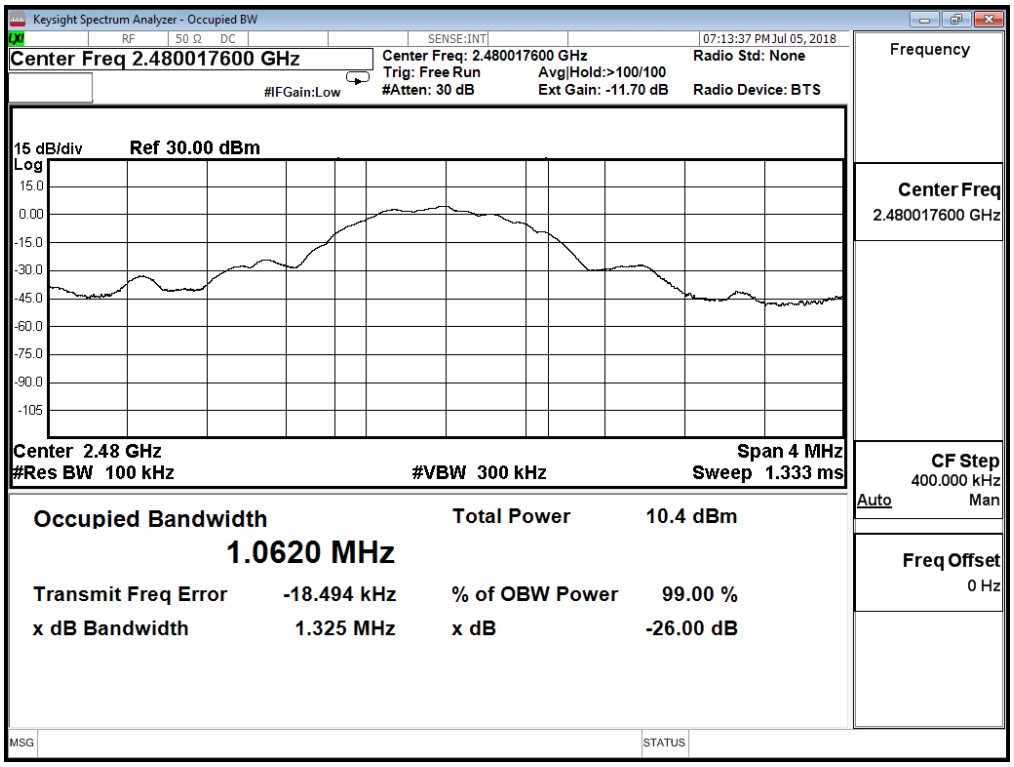
Channel 00



Channel 19



Channel 39

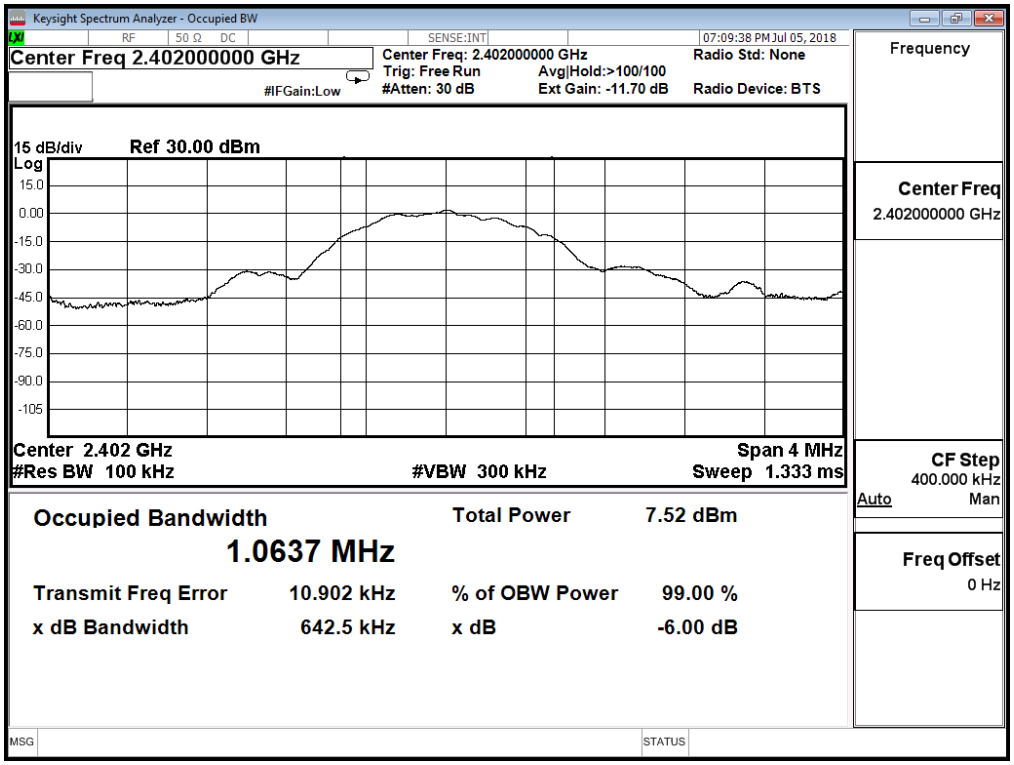


Product	Wireless-AC2200 Tri Band Gigabit Router		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Transmit_ADP-45BW B		
Date of Test	2018/07/05	Test Site	SR10-H

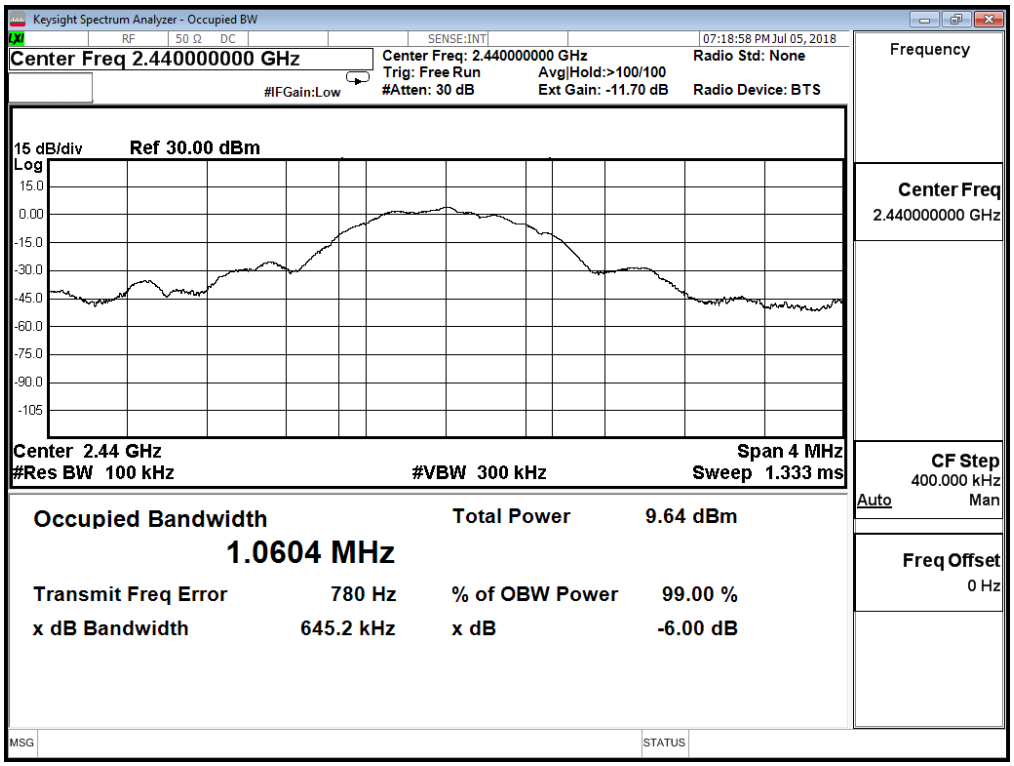
DTS Bandwidth:

Channel No.	Frequency (MHz)	Measure Level (KHz)	Limit (KHz)
0	2402	642.500	≧500
19	2440	645.200	≧500
39	2480	647.700	≧500

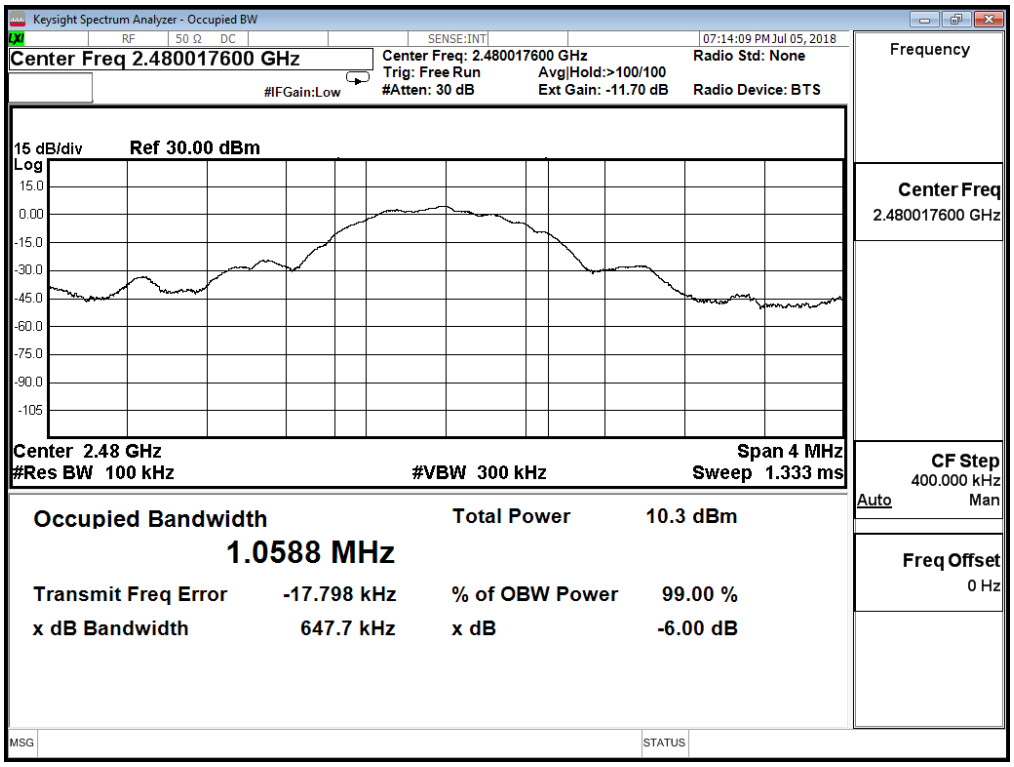
Channel 00



Channel 19

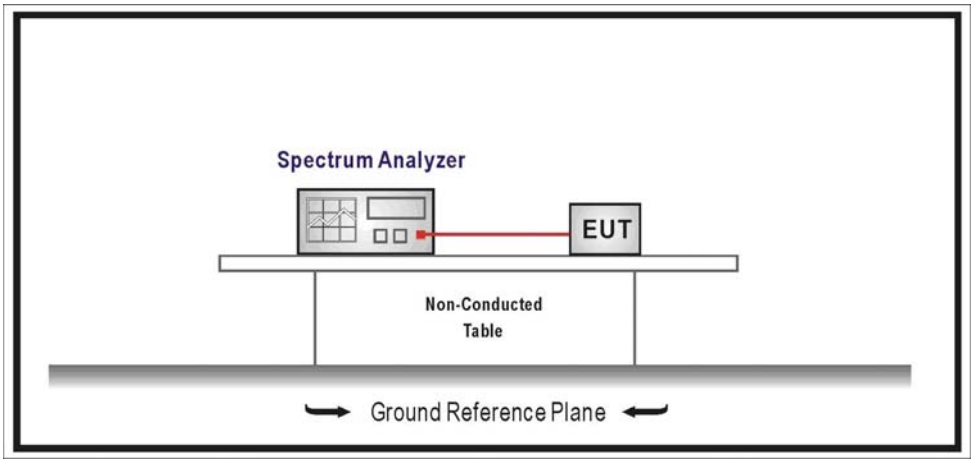


Channel 39



8. Power Density

8.1. Test Setup



8.2. Limits

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8dBm in any 3kHz band during any time interval of continuous transmission.

8.3. Test Procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB558074 D01V05 for compliance to FCC 47CFR 15.247 requirements.

8.4. Test Specification

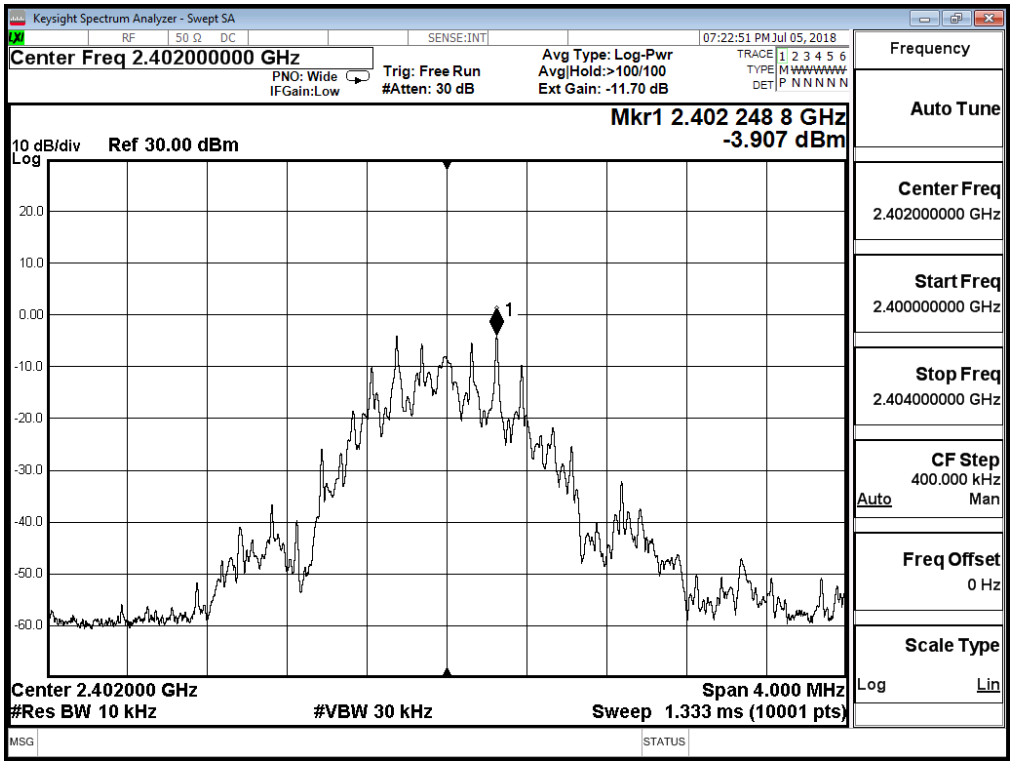
According to FCC Part 15 Subpart C Paragraph 15.247

8.5. Test Result

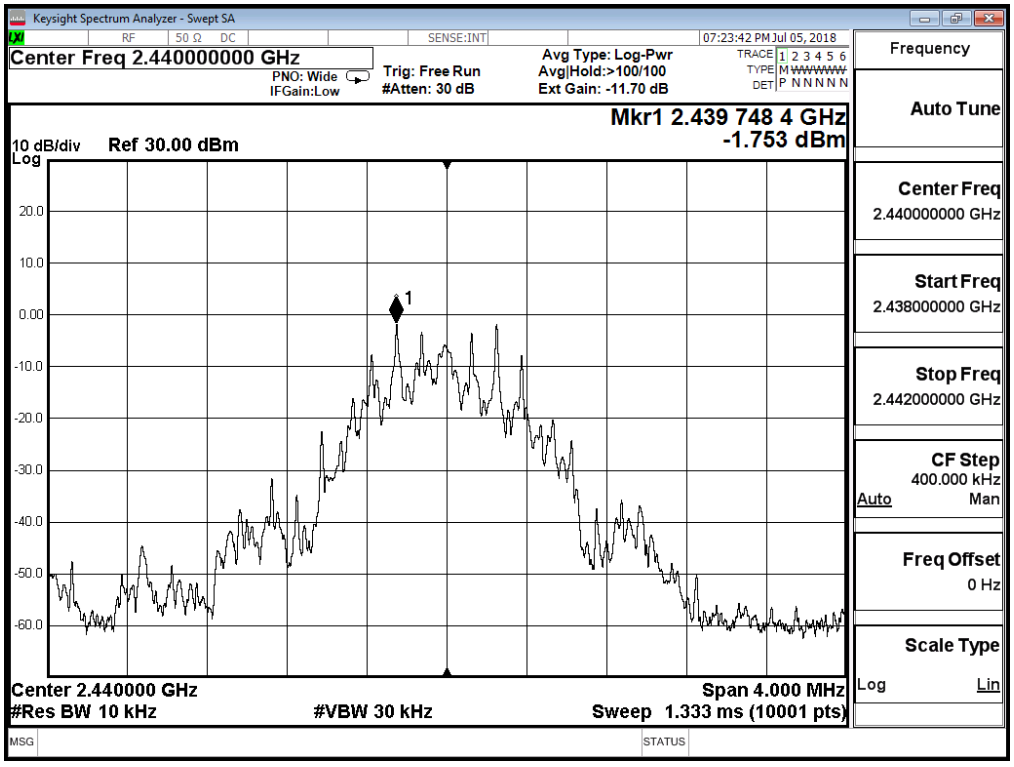
Product	Wireless-AC2200 Tri Band Gigabit Router		
Test Item	Power Density		
Test Mode	Mode 1: Transmit_ADP-45BW B		
Date of Test	2018/07/05	Test Site	SR10-H

Channel No.	Frequency (MHz)	Measure Vaule (dBm/3KHz)	Limit (dBm/3KHz)
00	2402	-3.907	≦8
19	2440	-1.753	≦8
39	2480	-1.109	≦8

Channel 00



Channel 19



Channel 39